
American River Basin

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Introduction

The American River Basin (ARB) Integrated Regional Water Management (IRWM) planning region, approved by the California Department of Water Resources (DWR) during the 2009 Regional Acceptance Process (RAP), covers a geographic area of more than 1,200 square miles with a population of more than 1.5 million inhabitants (see Figure 1). At the heart of the region are the lower American and Cosumnes Rivers. The lower American River is the only nationally-designated wild and scenic river running through a major metropolitan area in the United States, and the Cosumnes River is the only river on the western slope of the Sierra Nevada without a large rim dam. Being at the intersection of a large urban population and the valuable natural resources within the region has presented many challenges to a sustainable water supply, including:

- keeping supply paced with some of the fastest growth areas in the State;
- substantial cones of depression in the underlying groundwater basins;
- regionally-extensive groundwater contaminant plumes resulting from defense-related activities; and
- the need to balance environmental and water supply needs.

These challenges could have thrown the region into a crisis resulting in gridlocked water supplies and environmental degradation. Instead, beginning in 1993, regional stakeholders from a broad spectrum of interests came together to negotiate, for nearly seven years, a balanced solution for future water supply and environmental protection. The result was the landmark April 2000 Water Forum Agreement (WFA), which was signed by 40 stakeholder groups from a diverse representation of local government, environment, and business interests from Sacramento, Placer and El Dorado Counties. The WFA brought forth a new era of regional planning and collaboration based on two co-equal objectives:

1. Provide a reliable water supply for planned development to the year 2030; and
2. Protect and preserve the Lower American River.

In 2001, the Regional Water Authority (RWA) was formed as a joint powers authority (JPA) to assist local purveyors in the planning needed to implement the WFA. In 2004, RWA launched its initial effort to begin developing an IRWM planning region centered primarily on the stakeholders and projects involved in the Water Forum process. This resulted in the adoption in 2006 of the *American River Basin Integrated Regional Water Management Plan* (ARB IRWMP). RWA began the process of comprehensively updating its IRWM Plan using planning and stakeholder forums identified in its RAP application in 2009. Through these forums, the breadth of the planning effort has expanded beyond just the stakeholders involved in the Water Forum process to a much broader group of interests. The current geographic and demographic composition of the ARB IRWM region presents great opportunity to benefit local water supply for all users, expand habitat, improve flood protection, and ultimately provide benefits to the Sacramento-San Joaquin Delta adjacent to the region, which is partially within and primarily immediately downstream of the region.

The fifteen projects included in this Proposition (Prop) 84 IRWM Implementation Grant Program Proposal (Proposal) were identified through an inclusive stakeholder process (described in Attachment 1 of this Proposal). These projects contribute significantly to the Program Preferences included in the *Proposition 84 & Proposition 1E IRWM Guidelines* (DWR, August 2010), and each are discussed further in this attachment. The Regional Water Authority is submitting this Proposal on behalf of the ARB IRWM Planning Region to request \$16,222,222 to implement the projects described herein.

American River Basin
Attachment 3 – Work Plan

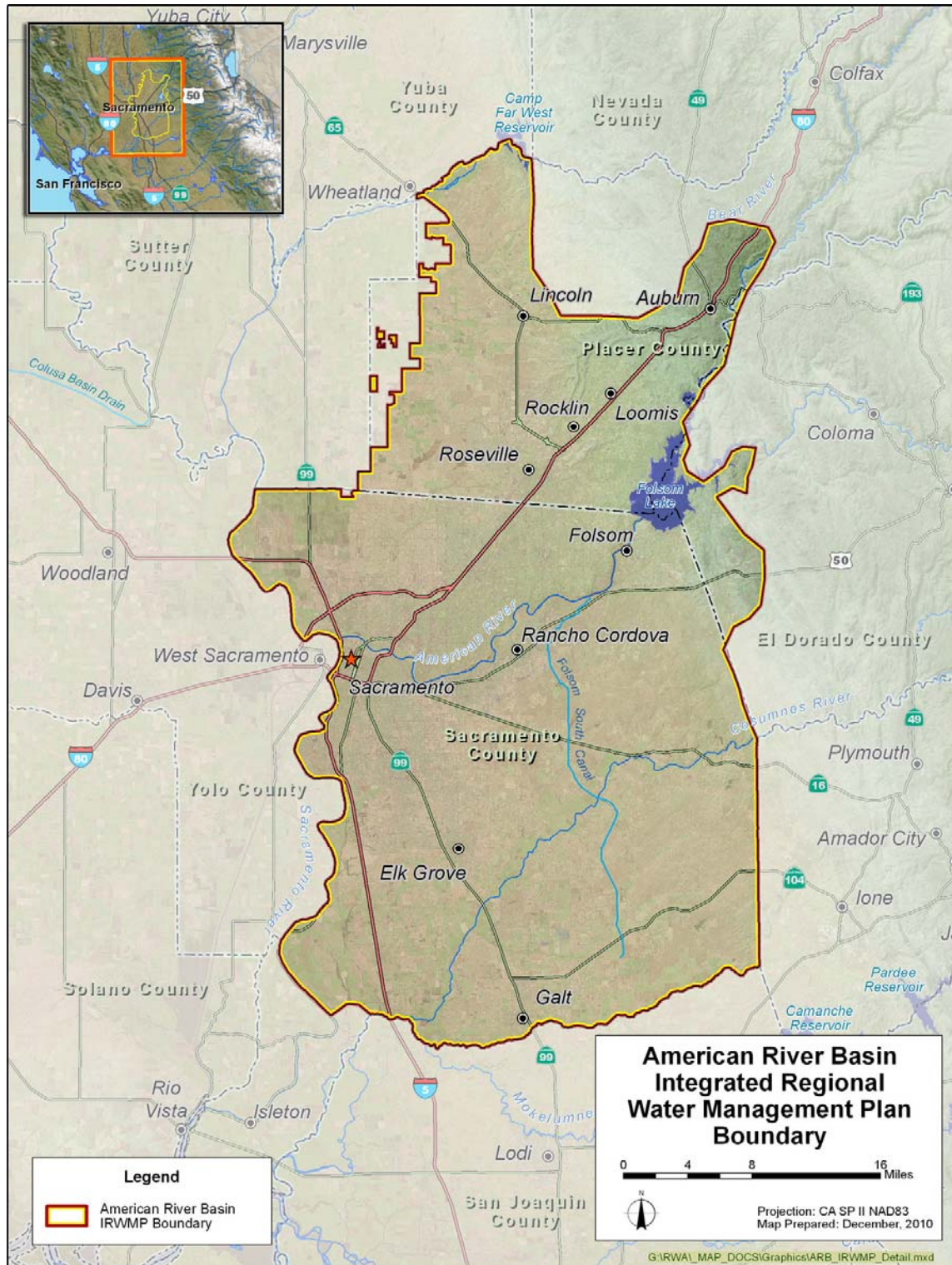


Figure 1: ARB IRWMP Region Boundaries

Goals and Objectives

The goal of this Proposal is to implement the current priority projects that best contribute to meeting the ARB IRWM objectives. While RWA is currently leading an effort to comprehensively update the American River Basin IRWM Plan to meet revised State standards, the objectives identified in the IRWM Plan adopted in May 2006 all serve to meet the adopted IRWM's mission "to preserve the economic and environmental health and well being of the region through the development of a program that focuses on watershed stewardship and comprehensive management of water resources in a reliable, cost effective, and responsible manner." The IRWM Plan Update will serve to update, expand, and quantify the existing objectives. The current adopted objectives of the ARB IRWM Plan include:

Water Supply – Plan for and implement programs and projects that develop the highest level of reliability in public drinking water suppliers and equitably distribute capital and operating costs.

Stormwater and Floodplain Management – Provide the highest practicable level of achieving flood control and stormwater quality in the region.

Groundwater Management – Protect and enhance groundwater resources and groundwater quality in accordance with adopted Groundwater Management Plans in the region.

Ecosystem Restoration – Coordinate with agencies developing plans that identify and implement ecosystem restoration projects along sensitive wildlife habitat areas in the region and Bay-Delta.

Recycled Water – Move forward in the long term planning of recycled water use to improve water use efficiency in the region, reduce TMDLs for certain constituents in receiving waters of treated wastewater effluent.

Potable Water Quality – Continuously look for innovative solutions in providing the highest level of protection in raw water sources used for potable drinking water supplies.

Other – Implement regional water management strategies that provide the highest level of understanding and financial support for regional programs and projects to meet the ARB IRWM Plan objectives.

Purpose and Need

The purpose of this Proposal is to continue implementation of the vision of Integrated Water Resources Management initially visualized by the ARB Region through the development of the Water Forum Agreement, and being promoted by the State to ensure sustainable water supplies for future generations. The ARB Region has greatly expanded its outreach to stakeholders and has found that there is tremendous need to implement projects across a broad spectrum of water interests that will benefit the natural and human environments.

As described in Attachment 1 (Authorization and Eligibility Requirements) of this Proposal, the projects described herein were identified through an open call for projects to representatives of more than 100 distinct stakeholder organizations throughout the region to ensure that the most current projects providing

the greatest value to the region were identified and evaluated. This call for projects followed a series of stakeholder meetings on the IRWM Plan and its planned update.

While the priority projects identified in this application address the aforementioned IRWM goals and objectives in multiple ways, the combined suite of projects achieves significant progress toward meeting these goals and objectives in water supply, stormwater and floodplain management, ecosystem restoration, and recycled water use. Each of these is discussed further below.

Water Supply

The Proposal will greatly increase the capacity of the region to conjunctively manage its surface water and groundwater resources. The region will add seven new production wells (Projects 1, 3, 4, 10, 14) in the IRWM area, increasing groundwater production capacity by some 10,600 gallons per minute (gpm). Each of these wells is to be operated as part of a conjunctive use program to protect against negative impacts to the groundwater basin and to increase water supply reliability. Project 1 will also add direct injection capacity for recharging the basin of some 1,800 gpm. The Proposal will also add a 4,200 gpm booster pump (Project 9) in the region, which will allow the region to utilize the new and existing groundwater wells to increase conjunctive operations in a part of the basin where less groundwater capacity is available, further increasing water supply reliability. Finally, the Proposal will add a 4 million gallon storage tank (Project 4) in south Sacramento, increasing water supply reliability and conjunctive use capability, while resolving system pressure and storage issues in a disadvantaged community.

The proposed projects will also increase water supply reliability through a series of water efficiency measures that will reduce demand. The region will accelerate the number of meter retrofits by 840 meters, about 20% more than planned for fiscal year 2011/12 (Project 6), resulting in an estimated water savings of about 126 acre-feet per year (AFY). A second project (Project 7) implements a series of California Urban Water Conservation Council best management practices (BMPs), including a direct install high-efficiency water fixture program that includes WaterSense toilets, landscape audits, and providing incentives for customer efficiency improvements. The direct-install portion of this project targets primarily customers in disadvantaged communities, an area typically underserved by conservation programs. Project 7 will result in an estimated average annual water savings of about 480 AFY over a 20-year period. The leak detection and repair project in one of the City of Folsom's known leakiest portions of its distribution system (Project 11) will save up to 1,000,000 gallons per day or 1,100 AFY. Finally, lining a portion of the Antelope Creek Canal in Placer County (Project 5) will result in up to 125 AFY water savings while reducing sediment loading as part of a flood control project.

Stormwater and Floodplain Management

This ARB Prop 84 Proposal improves the region's stormwater and floodplain management capabilities. The flood control structure on Antelope Creek (Project 5) will reduce the peak flow of a 100-year storm event by 530 cubic feet per second (cfs) near Vernon Street in downtown Roseville. This has significant potential to reduce flood damages. Within the region, this is one of the highest priority flood control projects that do not fall within the State Plan of Flood Control. Project 15 is an innovative project that incorporates low impact development (LID) techniques for integrated floodplain management into an

existing flood basin detention in Elk Grove. The project will take a single-purpose detention basin and incorporate habitat, water quality, recreational, and groundwater recharge elements. The success of this project could lead to significantly altering the way that the region looks at flood retention basin design to incorporate more integrated benefits.

Ecosystem Restoration

This Proposal strongly recognizes the relationship between a healthy ecosystem and sustainable water supply for all uses. Project 2 will remove a barrier on Secret Ravine (a tributary to Dry Creek) that blocks passage of salmonids during low creek flows. Removing the barrier will help ensure an area that has been designated by National Oceanic and Atmospheric Administration (NOAA) as critical habitat for steelhead trout remains open during low flow periods. Project 12 will restore a 3.3 acre site near the confluence of the American and Sacramento rivers as floodplain habitat. While this habitat will benefit many birds and other wildlife species, a primary benefit will be to increase the frequency of flooded habitat available for fish species. Project 13 will result in 143 acres of additional floodplain, riparian forest habitat, juvenile salmon rearing habitat, and potential giant garter snake foraging habitats on the lower Cosumnes River.

Recycled Water

This Proposal also recognizes the value of recycled water as an important resource to the region. Project 8 will supply up to 1,000 AFY of tertiary-treated recycled water to a cogeneration facility operated by Sacramento Power Authority in south Sacramento. This will offset the current use of high quality potable water used for cooling. This project represents an increase of some 20% of Sacramento Regional County Sanitation District current recycled water program.

Project List

Included in this grant proposal are fifteen projects that were identified during the ARB IRWM planning process for implementation. Once these projects are implemented, the result will be measurable progress towards the Region's overall water resource management objectives.

Table 1 summarizes the projects included in this Proposal with the inclusion of an abstract for each project, the current status of each project in terms of percent completion of design (as of December 2010), and the implementing agencies. Figure 2 displays the project locations and the regional boundaries. Note that these are general project locations. More detail on project locations is provided in the detailed work plan for each project later in this section.

Table 1: ARB Prop 84 Round 1 Implementation Project List

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
1	City of Roseville ASR Program – Phase 2	<p>The City of Roseville Aquifer Storage and Recovery (ASR) Program is an element of the comprehensive, regional conjunctive use program for southern Placer County and northern Sacramento County. Available water supplies from the City of Roseville’s water treatment plant will be injected into the underlying groundwater basin for extraction during droughts or in emergency situations, thus maximizing the use of surface water entitlements and enhancing operational flexibility for water users of Folsom Lake, the lower American River, and the connected groundwater basin.</p> <p>In Phase 1 of the program, four wells and associated wellhead facilities were constructed. Phase 2, for which this proposal seeks funding, consists of constructing the above-ground wellhead facilities for two wells - the Hayden Parkway Well and West Park #1 Well. The wells themselves have already been constructed. Each well will have an injection capacity of 900 gpm and extraction capacity of 1,800 gpm. The wells will provide an annual average water supply yield of 480 acre-feet, and provide for reduced dependence on surface water from the Bay-Delta watershed in dry years. Because the new wellhead facilities will be similar in size and nature to those already constructed, this project will move through design and into construction quickly.</p>	City of Roseville	Planning Phase – 0%
2	Secret Ravine Fish Passage Improvement Project	<p>Secret Ravine is a perennial stream within the Dry Creek Watershed in western Placer County. The stream supports spawning, juvenile rearing and emigration of Central Valley fall run Chinook salmon (<i>Oncorhynchus tshawytscha</i>) as well as spawning, seasonal rearing and migration of Central Valley ESU steelhead (<i>Oncorhynchus mykiss</i>). Dry Creek Watershed is part of the area designated by NOAA Fisheries as critical habitat for steelhead trout.</p> <p>The Secret Ravine Fish Passage Improvement Project, which will be implemented by the City of Roseville in conjunction with Dry Creek Conservancy, will remove an abandoned bridge and utility crossing that are obstructing the passage of salmonids during low-flow periods. The project also includes modification of the channel bed to accommodate passage for all species of salmonids at all flows and installation of large woody debris structures to provide habitat and high flow refugia. In addition to improving fish habitat, the channel alterations will protect the streambanks from erosion and relieve flooding in surrounding areas of development. The project also offers an educational benefit, as trail improvements with interpretive signage will be implemented to encourage the public to visit and learn about salmon, steelhead and water quality issues.</p> <p>This project is identified in Bulletin 250 (2005), a Fish Passage Improvement Program (FPIP) component of the CalFed Ecosystem Restoration Program.</p>	City of Roseville	90%
3	E.A. Fairbairn Groundwater Well Project	<p>The E.A. Fairbairn Groundwater Well Project is identified in the <i>2011 Water Master Plan</i> currently being prepared for the City of Sacramento. Significant growth has occurred in the service area, necessitating the development of additional groundwater wells to meet increasing water demand. The 2 million gallon per day (mgd) (approximately 1,400 gpm), E.A. Fairbairn Groundwater Well will be constructed at the City’s existing E.A. Fairbairn Water Treatment Plant site; the plant treats surface water diverted from the American River. Co-locating the groundwater well at the surface water treatment plant provides the opportunity to blend groundwater with surface water.</p> <p>During an average year, the E.A. Fairbairn Groundwater Well will operate 65% of the time, producing 1,462 acre-feet per year (AFY). In dry years, the well operation will increase to 100% of the time, producing 2,250 AFY. In wet years, the well will only be operated 15% of the time, producing 337 AFY of water supply. The well will offset surface water diversions, thereby reducing the impact on the lower American River and the Bay-Delta watershed, and assisting the region in meeting the in-stream flow commitments in the Water Forum Agreement.</p>	City of Sacramento	Planning Phase – 0%

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
4	Shasta Park Reservoir and Well Project	<p>The Shasta Park Reservoir and Well Project is a water supply project that benefits disadvantaged communities (DACs) within the City of Sacramento, and consists of a 2 mgd (1,400 gpm) groundwater well, a 4 million gallon (MG) reservoir and a booster pump station at Shasta Park. The City's 2005 <i>Water Distribution Master Plan</i> identified additional customer demands due to significant growth in the area and detailed the need for additional groundwater wells to meet those demands. Additionally, the master plan documented the need for distribution system upgrades in order to correct deficiencies (specifically, low pressures and reduced emergency and fire suppression water supplies) that affect the southeast portion of Sacramento, which includes indentified DACs.</p> <p>During an average year, the Shasta Park Well will operate 65% of the time, producing 1,462 acre-feet per year (AFY). In dry years, the well operation will increase to 100% of the time, producing 2,250 AFY. In wet years, the well will be operated 15% of the time, producing 337 AFY of supply. The well will offset surface water diversions, thereby reducing the impact on the lower American River and the Bay-Delta watershed, and assisting the region in meeting the in-stream flow commitments in the Water Forum Agreement. The project will also increase water pressures to 40 psi on average, improving service to customers and emergency response capacity in DACs. The Shasta Park Reservoir and Well Project also contains an educational aspect. Since the project site is near a library and park, informational kiosks will be installed to inform passersby about the City of Sacramento's water system and the importance of sustainable water resource management.</p>	City of Sacramento	Conceptual (10%) Design
5	Antelope Creek Water Efficiency and Flood Control Project	<p>The Antelope Creek Water Efficiency and Flood Control Project is a collaborative, multi-objective project that addresses water supply, water quality, flood protection, ecosystem restoration and public recreation objectives. The project will be completed in two phases, with only the first phase proposed to be funded by the Proposition 84 Implementation Grant Program, as described below. The project is being jointly undertaken by Placer County Water Agency (PCWA) and Placer County Flood Control and Water Conservation District.</p> <p>Proposed construction in the first phase includes installing energy dissipaters to capture sediment at canal release points and heightening the canal walls where the potential for overtopping exists, as well as gunite lining in the Antelope Canal. The gunite-lined portions of the canals will reduce water conveyance losses and will improve water quality through reduced contact between the raw water and bare earth. This portion of the project is estimated to conserve up to 125 AFY of raw water.</p> <p>An on-channel flood control weir will be installed along an open space-protected reach of Antelope Creek near Atlantic Street in the City of Roseville. Construction of the weir will be combined with bank re-contouring to improve floodplain storage and connectivity. These stream enhancements will provide significant flood reduction benefits to downtown Roseville (an area which has been subjected to repeated flood damage) while also enhancing riparian corridor ecosystems and improving groundwater recharge. Interpretive signs will be installed along an existing multi-purpose public trail system to educate the public about the project. This portion of the project is estimated to reduce peak flows at critical locations within downtown Roseville by as much as 530 cfs during a 100-year storm event.</p>	Placer County Flood Control and Water Conservation District & Placer County Water Agency	Conceptual (10%) Design

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
6	Regional Water Meter Retrofit Acceleration Project	<p>The Regional Water Meter Retrofit Acceleration Project will install 840 additional residential meters over one year in the service areas of three of the largest local public water suppliers in the region: the City of Sacramento, Sacramento Suburban Water District (SSWD), and Sacramento County Water Agency (SCWA). The project, which is being coordinated by the Regional Water Authority (RWA), will be implemented within each of the three service areas by the respective water supplier. Accelerating water meter installation ahead of the 2025 deadline provides opportunities for considerable water savings.</p> <p>The greater Sacramento region has made significant progress towards metering its water service connections to meet the 2025 state mandate; over 50% of the areas connections are now metered. However, with additional funding, the installations could be significantly accelerated, and correspondingly, water savings would be realized sooner. The California Urban Water Conservation Council (CUWCC) estimated that the installation of water meters corresponds to 20% water savings, which for this project translates to 126 AFY.</p> <p>The Regional Water Meter Retrofit Acceleration Project is essentially ready to proceed. The high level of current implementation and experience with these meter retrofits, means the final design can be expedited. Because each of the implementing agencies currently selects a contractor to perform similar work on a fiscal year basis , the Regional Water Meter Retrofit Acceleration Project can eliminate the schedule delays often associated with the bidding and award process.</p>	Regional Water Authority	Standard design already developed; ready for implementation
7	Regional Indoor and Outdoor Water Efficiency Project	<p>The Regional Indoor and Outdoor Water Efficiency Project was developed by water purveyors in the greater Sacramento region to increase the level of water conservation and ensure a long-term water supply for the region's urban and agricultural users. The plan promotes water management strategies that support environmental needs in the lower American River as well as the state's goal of a 20% reduction in per-capita water use by 2020, and do so in a way that is beneficial to disadvantaged communities (DACs) in the region.</p> <p>The Regional Indoor and Outdoor Water Efficiency Project consists of four components that will conserve an estimated 9,615 acre-feet over the life of the programs. The four programs are: (1) interior water efficiency fixture retrofits, primarily targeted at disadvantaged communities (DACs); (2) exterior single family water use surveys and upgrades; (3) exterior water use surveys and upgrades for large landscapes, including commercial, industrial and institutional (CII) and residential agriculture landscapes; and (4) the preparation of water use budgets for accounts with dedicated landscape meters. The retrofits for disadvantaged households are included because DACs are often unable to afford the upfront capital to participate in rebate-based conservation programs. The water use surveys, system upgrades and the landscape budgets were selected because landscape water use is the largest component of water use in the region.</p>	Regional Water Authority	Formal design not required; ready for implementation
8	Sacramento Regional County Sanitation District/Sacramento Power Authority Recycled Water Project	<p>The Sacramento Regional County Sanitation District/Sacramento Power Authority (SRCSD/SPA) Recycled Water Project seeks to match water quality with water use by making recycled water from the Sacramento Regional Wastewater Treatment Plant (SRWTP) Water Reclamation Facility (WRF) available to SPA's Campbell Soup Cogeneration Plant (Cogeneration Plant). The City of Sacramento currently supplies potable surface water to the Cogeneration Plant, which has a water demand of approximately 1 mgd, or approximately 1,000 AFY; primarily to meet non-potable water demands in the Cogeneration Plant's cooling towers. The quality of the recycled water produced by SRCSD at its SRWTP WRF is a good fit to meet the non-potable water demands at the Cogeneration Plant.</p> <p>The SRCSD/SPA Recycled Water Project includes the design and construction of the necessary treatment and transmission facilities for SRCSD to serve recycled water to the Cogeneration Plant. The project includes approximately 5.5 miles of 12-inch diameter transmission pipeline, modifications to the piping system and associated appurtenances at the Cogeneration Plant, and piping and infrastructure modifications at the SRWTP WRF. The transmission pipeline is expected to form the backbone infrastructure for future opportunities to put additional recycled water to use.</p>	Sacramento Regional County Sanitation District	Conceptual (10%) Design

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
9	North Antelope Booster Pump Station Project	<p>The North Antelope Booster Pump Station Project is an important element in expanding the capacity and flexibility of the regional conjunctive use program. The project will be implemented by Sacramento Suburban Water District for the benefit of neighboring San Juan Water District (SJWD) retail customers. As documented in SSWD's <i>2009 Water System Master Plan</i>, SSWD has sufficient water supplies to meet its current and projected future demands. However, other districts, especially on the east side of the region, have limited access to groundwater to augment their own supply. This project, coupled with new and existing groundwater extraction capacity and existing transmission pipelines, can expand the geographic area of the region using groundwater in dry years.</p> <p>The booster pump station, with a design flow of 4,200 gallon per minute (gpm), will allow for the reversal of flow in the existing Antelope and Cooperative Transmission Pipelines. Currently, surface water from SJWD Sidney Peterson Water Treatment Plant is transmitted to Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, SSWD and SJWD through these pipelines. With the exception of SSWD, the SJWD customers all rely heavily on surface water for their supply. The North Antelope Booster Pump Station Project will allow SSWD to transfer banked groundwater from its North Service Area to the other agencies connected to the transmission pipelines, providing them with a secondary source of supply in dry years and times of emergency. By offsetting demand for surface water diversions in dry years, this project reduces dependence on the Bay-Delta watershed and assists the region in meeting the in-stream flow commitments in the Water Forum Agreement.</p>	Sacramento Suburban Water District	Conceptual (10%) Design
10	Coyle Avenue & Roseview Pump Stations and Treatment Systems Project	<p>The Coyle Avenue and Roseview Pump Stations and Treatment Systems Project is another component of the SSWD and regional conjunctive use programs. This project involves the construction of one 16-inch diameter well, pump station and treatment system at each of two sites within SSWD's North Service Area. The proposed well sites, namely Coyle Avenue Elementary School and Roseview Park, are both north of a region-wide groundwater cone of depression and regional contamination plumes.</p> <p>The Coyle Avenue Pump Station and Treatment System will have a pumping capacity of 2,250 AFY (1,400 gpm), and the Roseview Pump Station and Treatment System will have a pumping capacity of 3,500 acre-feet per year (2,200 gpm). Wellhead treatment systems at each site will consist of chlorination for disinfection and, if necessary, direct-filtration treatment for manganese removal.</p> <p>Because of recent experience in production well installation, and detailed knowledge of the subsurface in this area, the project can be readily implemented. Additional groundwater capacity will reduce dependence of surface water from the Bay-Delta watershed and assist the region in meeting the in-stream flow commitments in the Water Forum Agreement.</p>	Sacramento Suburban Water District	Well portion - 100%; Pump station – Conceptual (10%) Design
11	Willow Hill Pipeline Rehabilitation Project	<p>The City of Folsom proposes to implement the Willow Hill Pipeline Rehabilitation Project, a priority project from the City's System Operation Review (SOR) Program. The objective of the SOR Program is to optimize the City's water distribution system by minimizing unaccounted water losses and maximizing conservation through water efficiency improvements, thereby ensuring long-term sustainability of the City's water supplies.</p> <p>Folsom identified unaccounted system-wide water losses of over 17% (as compared to an industry standard of 10%). A water audit performed in 2008 indicated that the Willow Hill System loses up to 1 mgd on average. The City will slip-line the 30-inch diameter, 3.5 mile long Willow Hill Pipeline, and/or replace sections of the pipe to reduce system losses, conserving approximately 1,100 AFY.</p> <p>The project provides the potential to sustain environmental flows in the lower American River during dry years by reducing the amount of water that needs to be diverted by Folsom. It will also be a major element of Folsom's efforts to support of the state's goal of a 20% reduction in per-capita water use by 2020.</p>	City of Folsom	Planning Phase – 0%

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
12	Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project	<p>The Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project is a floodplain management project that offers significant environmental benefits. The project is located in the American River Parkway at River Mile 0.5R (RM 0.5R), one-half mile upstream of the confluence with the Sacramento River. This reach of the American River is designated Wild and Scenic.</p> <p>The project will increase the frequency of flooded habitat available for fish in the American and Sacramento Rivers during the winter and spring and improve riparian habitat for birds and other wildlife. The project involves lowering and re-grading of the river's currently steep and eroding north bank to create fish and wildlife habitat. After the bank is reshaped, instream woody material (IWM) and brush mattresses will be installed to reduce erosion potential and to provide additional fish habitat. Finally, a thick band of native vegetation will be established near the river, and less dense and varied vegetation will be established over the rest of the site.</p> <p>Prior to construction, elderberry shrubs, which occupy 2.5 acres of the 3.3 acres identified for floodplain habitat, will be transplanted into 10 acres of upland that is currently covered in non-native weedy grasses, blackberry vines, and a few native trees.</p> <p>The project was studied and proposed by the U.S. Army Corps of Engineers and the California Reclamation Board.</p>	Sacramento Area Flood Control Agency	100%
13	Lower Cosumnes River Floodplain Restoration Project	<p>The Lower Cosumnes River Floodplain Restoration Project is located within the Cosumnes River Preserve-Cougar Wetlands Unit in the upper Sacramento-San Joaquin Delta. The Cosumnes River Preserve is a collaborative partnership between federal, state, and private landowners to conserve, restore, and manage the upland, wetland, riparian, and riverine habitat associated with the lower Cosumnes River. The Cougar Wetlands Unit was historically an active floodplain of the Cosumnes River, but was leveled for agricultural uses decades ago. The Lower Cosumnes River Floodplain Restoration Project provides a rare opportunity to restore historic floodplain connectivity to the lower portion of a Central Valley river, assisting in endangered species recovery and rare habitat restoration.</p> <p>This project includes engineered levee breaches, re-creation of historic sloughs and off-channel wetlands, and installation of fish screens on existing water intake structures. These tasks will result in 143 acres of additional floodplain, riparian forest habitat, juvenile salmon rearing habitat, and potential giant garter snake foraging habitats. Additional benefits offered by this project include reduced flooding in the lower Cosumnes and Mokelumne Rivers and enhanced groundwater recharge. Recreational opportunities will be provided through construction of ADA accessible paths and hunting blinds.</p>	Ducks Unlimited	Conceptual (10%) Design
14	OHWD / Rancho Murieta Groundwater Recharge Project	<p>The OHWD/Rancho Murieta Groundwater Recharge Project is a regional conjunctive use project that will divert up to 4,000 AFY of surface water from the Cosumnes River water rights of the Rancho Murieta Community Service District (RMCSD) to groundwater recharge basins in the Omoichumne-Hartnell Water District (OHWD). Through this project, OHWD will increase groundwater levels in an aquifer utilized by land owners, and RMCSD will recover banked water, as needed, to address water supply shortages. The recharge will contribute to recovery of ground water levels in a groundwater basin with a significant cone of depression, and to the ultimate reconnection of the groundwater with the Cosumnes River.</p> <p>The OHWD/Rancho Murieta Groundwater Recharge Project consists of two primary elements. The recharge element includes a new intake facility on the Cosumnes River upstream of Blodgett Dam, a 90-acre spreading basin and approximately 600 feet of pipeline to convey available water to the basin. The recovery element involves the installation of a 500-600 gpm well and 5,000 foot pipeline to withdraw groundwater during periods of water shortage and convey it to Rancho Murieta's distribution system.</p> <p>Future improvements, expected to be constructed within the next 10 years will improve the efficiency of diversions through the installation of an inflatable weir on the existing diversion dam.</p>	Omoichumne-Hartnell Water District & Rancho Murieta Community Services District	Planning Phase – 0%

Project No.	Project Name	Abstract	Implementing Agency	Percent Design Complete
15	Sleepy Hollow Detention Basin Retrofit	<p>The Sleepy Hollow Detention Basin Retrofit Project is a collaborative effort among the City of Elk Grove, Laguna Creek Watershed Council and Sheldon Community Association. The purpose of the project is to transform an existing single-function detention basin, namely the 6.3-acre flood control basin serving the Sleepy Hollow Unit 2 subdivision in the City of Elk Grove, into a multi-functional water resource feature.</p> <p>The project will evaluate and then implement various enhancement alternatives to improve runoff water quality, provide habitat for birds and aquatic animals, enhance recreational opportunities with trail systems for public use during non-flood periods, and provide groundwater recharge opportunities through the installation of Darcy Columns (dry wells). Selection of the preferred option will favor alternatives that can be implemented using low impact development techniques (e.g. all grading must be achieved with the existing footprint to have a net cut/fill of zero).</p> <p>Successful implementation of the Sleepy Hollow Detention Basin Retrofit Project could act as a template for future development within the City of Elk Grove and other local jurisdictions. Additionally, the project provides a great opportunity for science education for students at 5 schools within a 2-mile radius of the project site.</p>	City of Elk Grove	Conceptual (10%) Design

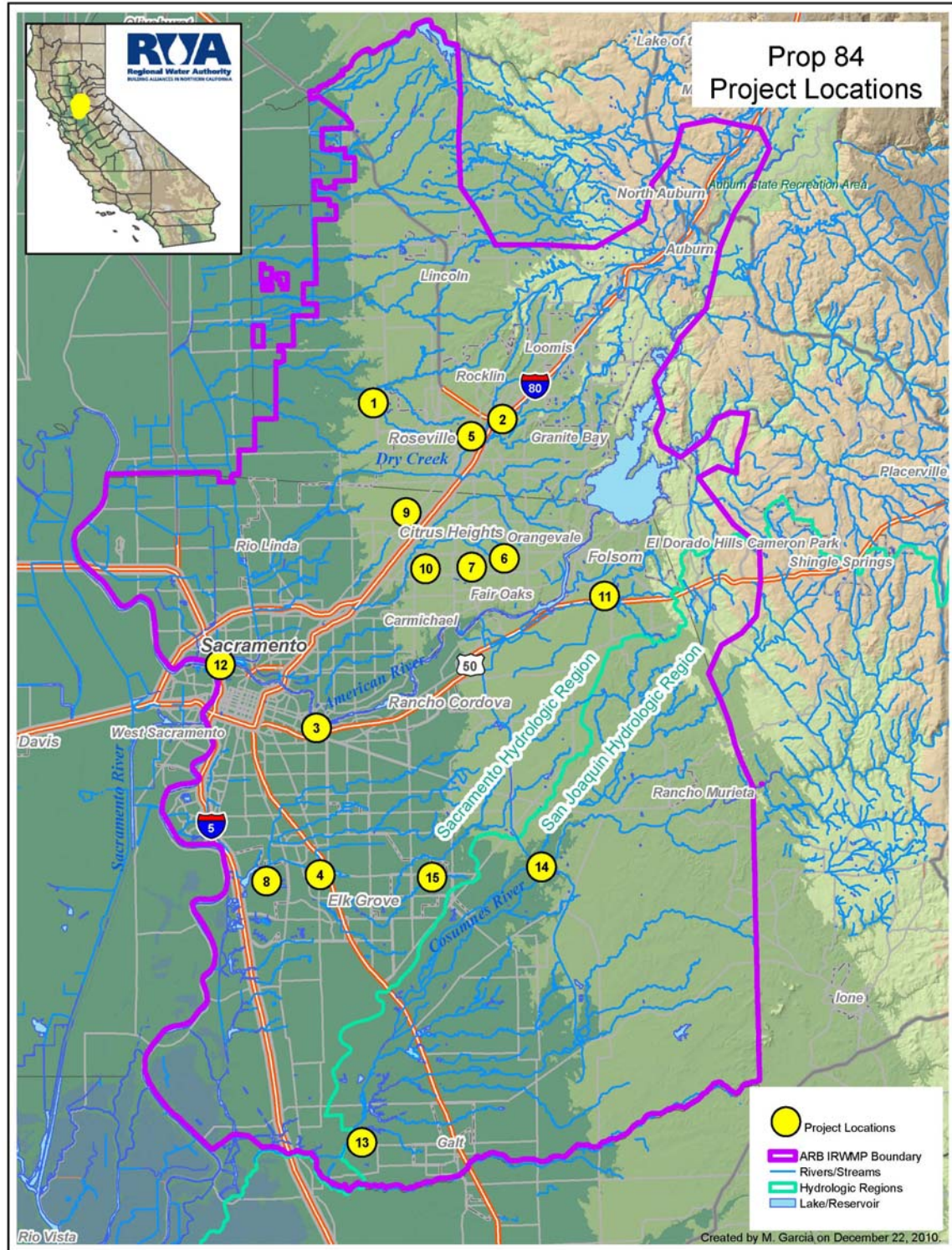


Figure 2: Project Locations and ARB Regional Boundary

Integrated Elements of Projects

This Proposal is highly integrated from a regional perspective (e.g., implementing elements of the Water Forum Agreement and IRWM Plan) and, in many cases, at the project level. Beginning with the Water Forum Agreement (WFA), water managers and planners in the Region have strived to efficiently utilize the region's precious water resources to ensure a future supply and protect and preserve the natural environment. Through coordinated efforts, integrated regional water management planning has been, and will continue to be, maximized through the use of overarching water management strategies spread throughout the region.

Combining multiple water management strategies to achieve multiple objectives allows for a diversified approach to problem solving. Specifically, the fifteen projects summarized above can be grouped into three key categories that describe the regional linkages of the Proposal: Water Supply Reliability/Conjunctive Use, Efficient Water Use and Reuse, and Floodplain and Environmental Restoration, Protection and Improvement. These integrated categories are described in more detail below. Where applicable, specific synergies or linkages at the project level are also described.

Water Supply Reliability / Conjunctive Use

Water purveyors in parts of Sacramento County and the adjoining portion of Placer County are faced with the problem of supply disparity, where parts of the counties are currently served solely by surface water and other parts are currently served solely by groundwater. This creates serious challenges for the purveyors because some suffer from supply reductions in dry years, while others face problems from groundwater contamination and stressed groundwater basins. Fortunately, the problem is not insurmountable. With interagency coordination and integration, the problem can be solved with some strategic infrastructure improvements and agency partnerships. The goal is to transform the individual efforts of each agency into a regional conjunctive use plan to:

- Improve the flexibility of the local and regional water system as a whole;
- Promote more use of surface water in wet years to allow recovery and banking of groundwater for use in dry years. This conjunctive use framework is a critical element of the WFA, as this allows for surface water diversion reductions to protect the lower American River environment in dry years; and,
- Create opportunities for future state or federal partnerships to provide broader, system-wide benefits. For example, local agencies provided water to the State/Federal Drought Water Bank in 2009.

Included in this ARB Prop 84 grant proposal are seven wells, a pump station, a storage tank, and a groundwater recharge basin that will greatly improve supply reliability through expanded conjunctive use while being protective of the natural environment.

The **City of Roseville ASR Program** (Project 1) consists of installing wellhead equipment at the Hayden Park Well and West Park Well #1 as part of the City's overall ASR Program. The project will increase

groundwater banking capacity, improve water supply reliability and emergency response, increase conjunctive use within the ARB Region and protect existing groundwater resources.

The **E.A. Fairbairn Groundwater Well Project** (Project 3) and **Shasta Park Reservoir and Well Project** (Project 4), both proposed by the City of Sacramento, will together construct two groundwater wells (with associated wellhead facilities) to expand the City's conjunctive use operations. The Fairbairn Well will be a very cost effective way of increasing conjunctive use as it will be located at one of the City's water treatment plants where it can take advantage of property already owned by the City, and existing water treatment and storage facilities on-site. The Shasta Park project will construct both a well and a storage tank to maximize conjunctive use opportunities in an area that is distant from the City's existing surface water treatment plants. It will also resolve a low system pressure issue in a disadvantaged portion of south Sacramento. These projects will improve water supply reliability and reduce impacts to the Lower American River during dry years by increasing groundwater pumping and reducing surface water diversions.

Sacramento Suburban Water District (SSWD) is proposing the North Antelope Booster Pump Station Project and the Coyle Avenue and Roseview Pump Stations and Treatment Systems Project. The **North Antelope Booster Pump Station** (Project 9) includes the construction of a booster pump station capable of pumping groundwater from the SSWD North Service Area into the Antelope and Cooperative Transmission Pipelines for conveyance to various retail customers. This project is highly synergistic as it will provide for the reversal of flow in the Antelope and Cooperative Transmission Pipelines, thereby allowing SSWD to transfer conserved and banked groundwater to the other agencies connected to the pipeline. This project will expand conjunctive use opportunities in the SJWD service area, enabling the retail surface water customers to use more groundwater during dry years and in times of emergency, and greatly expanding regional opportunities for conjunctive use to areas that lack significant access to groundwater. The **Coyle Avenue and Roseview Pump Stations and Treatment Systems Project** (Project 10) involves the construction of one well, pump station and treatment system at each of two sites within the SSWD the service area, increasing water supply reliability, improving quality by avoiding known contaminant concerns, and helping protect the American River ecosystem by decreasing surface water use in dry periods.

The last project that falls into the Water Supply Reliability/Conjunctive Use category is the **OHWD/Rancho Murieta Groundwater Recharge Project** (Project 14), a regional conjunctive use project that will divert up to 4,000 acre-feet per year of available surface water from Rancho Murieta Community Services District (RMCS D) to spreading basins in the Omochumne-Hartnell Water District (OHWD) service area to allow recharge of the groundwater aquifer. This project is highly synergistic as it will benefit RMCS D by allowing recovery of some of the stored water during dry years and in peak demand periods as RMCS D lacks significant storage for its surface water diversion rights. RMCS D would have access to groundwater without impacting a basin that has already seen significant drawdown due to existing use. The availability of groundwater to RMCS D significantly addresses reliability concerns resulting from limited surface storage in Rancho Murieta. The project benefits OHWD by increasing groundwater levels in the aquifer that is utilized by land owners in the OHWD.

Efficient Water Use and Reuse

Using and reusing water efficiently includes maximizing recycled water use, matching use with water quality, and implementing measures that will conserve water and reduce water waste. Regional planners understand the importance of recycled water and its role in conjunctive use, water reliability and positive impacts on receiving water quality. Furthering their efforts to expand recycled water distribution throughout the greater Region, planners have included key water use and reuse projects in this grant proposal, one being a recycled water project and the other three being water conservation-related projects. Successful implementation of these projects will result in:

- The production of a reliable year-round drought-proof source of water;
- Protection of existing surface water and groundwater supplies for other beneficial uses;
- Improvement of water use efficiency in the Region; and
- Help in meeting the State's goal of reduction per capita water use by 20% by 2020.

The **Regional Water Meter Retrofit Acceleration Project** (Project 6) and the **Regional Indoor and Outdoor Water Efficiency Project** (Project 7) will both be implemented through RWA and reduce water and energy consumption in the Region by implementing California Urban Water Conservation Council (CUWCC) Best Management Practices (BMPs). The **SRCS/SPA Recycled Water Project** (Project 8) consists of constructing the necessary treatment and transmission facilities to replace potable water use with recycled water at the Campbell Soup Cogeneration Plant. The non-potable water needs of the Cogeneration Plant, currently met by potable surface water supplied by the City of Sacramento, will be replaced with recycled water to be produced by SRCS. This will free-up surface water to meet potable water needs and augment the region's potable water supplies. The **Willow Hill Pipeline Rehabilitation Project** (Project 11) is a major component of the City of Folsom's water system and is a major focus on the City's overall System Operation Review (SOR) Program. The primary objective of the City's SOR Program, and the Willow Hill Pipeline Rehabilitation Project, is to optimize the City's water distribution system to maximize conservation and minimize system losses from unaccounted water.

Floodplain and Environmental Restoration, Protection and Enhancement

Maintaining a healthy environment is key to maintaining a healthy water supply and to protecting against flooding. The American River Basin, located between some of the Central Valley's most noted rivers, is acutely aware of the importance the rivers play in the environment – from recreation to critical habitat. Oftentimes, a floodplain or flood protection project can be linked with an environmental protection and enhancement project, maximizing benefits. To this end, the five projects described below promote those values in the greater ARB Region and fulfill the objectives of the ARB IRWM Plan.

The **Antelope Creek Water Efficiency and Flood Control Improvement Project** (Project 5) is a multi-benefit project being proposed by the Placer County Flood Control and Water Conservation District and Placer County Water Agency (PCWA). The benefits of this project are so varied that this project could, in fact, fall under the Water Supply Reliability/ Conjunctive Use category, as well as the Efficient Water Use and Reuse category. It will consist of concrete gunite lining along PCWA's Antelope Canal, as well

as an on-channel flood control weir along Antelope Creek. The project will meet multiple planning objectives by increasing flood protection, improving water supply and water quality, restoring local ecosystems and expanding an existing public recreation corridor. This project has high internal synergy as the reduced sedimentation from lining the canal will improve channel capacity to assist in the flood control measures of the project. The idea for this project spawned from participation in the ARB IRWM effort.

The **Secret Ravine Fish Passage Improvement Project** (Project 2) restores natural channel and floodplain function and increases channel capacity, providing access to approximately 10 miles of potential spawning and rearing habitat upstream of the project site during low-flow conditions. The project will improve flood management by removing a flow restricting barrier and reconnecting the channel to the floodplain and also increasing aquatic habitat available for salmonid spawning within the Dry Creek Watershed. The **Lower American River Mile 0.5 Aquatic and Riparian Enhancement** (Project 12) has been developed to increase the frequency of flooded habitat available for fish in the American and Sacramento Rivers during spring and winter, and to provide improved habitat for birds and other wildlife species. These enhancements will be achieved by lowering and re-grading the over-steepened river bank at the site and improving the quality of the upland habitat on the adjacent elevated floodplain. Similarly, the **Lower Cosumnes River Floodplain Restoration Project** (Project 13) improves riparian forest habitat and juvenile salmon rearing habitat by restoring historic floodplain hydrodynamics and riparian forest ecosystems. And finally, the **Sleepy Hollow Detention Basin Retrofit** (Project 15) will modify an existing flood detention basin in the Laguna Creek Watershed using low impact development techniques to create a multi-functional water resource feature, improving water quality and providing habitat for birds and aquatic species.

In summary, the suite of 15 projects included in this Proposal promote conjunctive use, improve water reliability, help protect urbanized areas from flooding, aid in environmental restoration and protection, contribute to the recovery of special species and reduce regional conflicts over water. The ARB Region strives to sustain an integrated approach by working together to promote efficiency in utilizing their water resources. Building on the WFA foundation to promote cooperation and resolve water conflicts, the region has established a proposal that culminates in a strategy truly achieving integrated regional water management.

Regional Map

The fifteen projects included in this Proposal are located within the ARB Region, which encompasses much of Sacramento County and the lower watershed portions of Placer and El Dorado Counties. The boundaries of the ARB IRWMP Plan area are defined by the boundaries of the participants' services areas, and include Placer County Water Agency (PCWA), City of Lincoln (Lincoln) and Sacramento County boundaries on the north, the lower watershed boundaries on the east, the Sacramento County boundary on the south (to the west bank of the Sacramento River), and the Sacramento River/Sacramento County line on the west. Most of the region overlies the North American, South American, or the Cosumnes Groundwater Subbasin and/or receives water supply, directly or indirectly, from the American, Sacramento, and/or Cosumnes Rivers. These common water supply sources, and related water supply

issues and physical features, link the participating agencies together and make the region appropriate for integrated regional water planning and management.

The DACs in the ARB region were identified by evaluating geographic information system (GIS) files prepared by the U.S. Census Bureau. The data show average income by census tract. DACs are those with an annual median household income (MHI) below 80% of the statewide MHI. DACs identified and are shown in Figure 3. Each DAC lies within the boundary of a water purveyor, city, or county that has been involved in past regional planning efforts. Unlike some parts of the state, the DACs in the Region are not isolated communities with particular water supply or quality concerns (for example, the Central Valley community of Allensworth is isolated with few alternatives to its high-arsenic groundwater supply). The water supply and water quality needs of DACs in the ARB region are generally served effectively by water purveyor efforts to provide high quality water supplies to their entire service area and through the ARB Region's IRWM planning efforts.

While all the projects in this proposal will, in general, meet the needs of DACs in the ARB region, two projects described herein will directly benefit areas identified as DACs. These projects are the **Regional Indoor and Outdoor Water Efficiency Project** being implemented by the Regional Water Authority and the City of Sacramento's **Shasta Park Reservoir and Well Project**. Disadvantaged communities in the greater Sacramento area have not typically participated in large numbers in traditional water conservation rebate programs. Reasons for this include a greater proportion of rental properties, a limited ability to finance their share of required repairs or improvements, and cultural barriers to participating with governmental agencies. The **Regional Indoor and Outdoor Water Efficiency Project** proposes developing and implementing water conservation programs that better serve the social and economic realities of DACs, and includes a number of measures from which residents in DACs may benefit. Of these measures, one major element of the project is specifically targeted to the needs of DACs. With the requested grant funding, RWA and its members will provide complete interior water conservation retrofits for approximately 1,100 households in the greater Sacramento area. A target of 75% (or 825) of the retrofits will be completed in the identified DACs within the region. At no cost to the customer, the makeover will include a standard survey of interior water use, and direct installation of indoor water efficiency devices including a high efficiency toilet, a low flow showerhead, and faucet aerators. This will further help the economy of the DACs as well as help to overcome the barriers to dealing with governmental agencies.

The **Shasta Park Reservoir and Well Project** is a water supply project which benefits DACs within the City of Sacramento. The City's 2005 *Water Distribution Master Plan* identified additional customer demands due to significant growth in the area and detailed the need for additional groundwater wells to meet those demands. Additionally, the master plan documented the need for distribution system upgrades in order to correct deficiencies (specifically, low pressures and reduced emergency and fire suppression water supplies) that affect the southeast portion of Sacramento, a region known to include DACs. The Shasta Park Reservoir and Well Project meets both of these needs through the installation of a 2 mgd groundwater well, a 4 million gallon (MG) reservoir and a booster pump station at Shasta Park. The tank

will provide for greater system pressures for residential customers as well as improved pressures for firefighting operations in a disadvantaged area of south Sacramento.

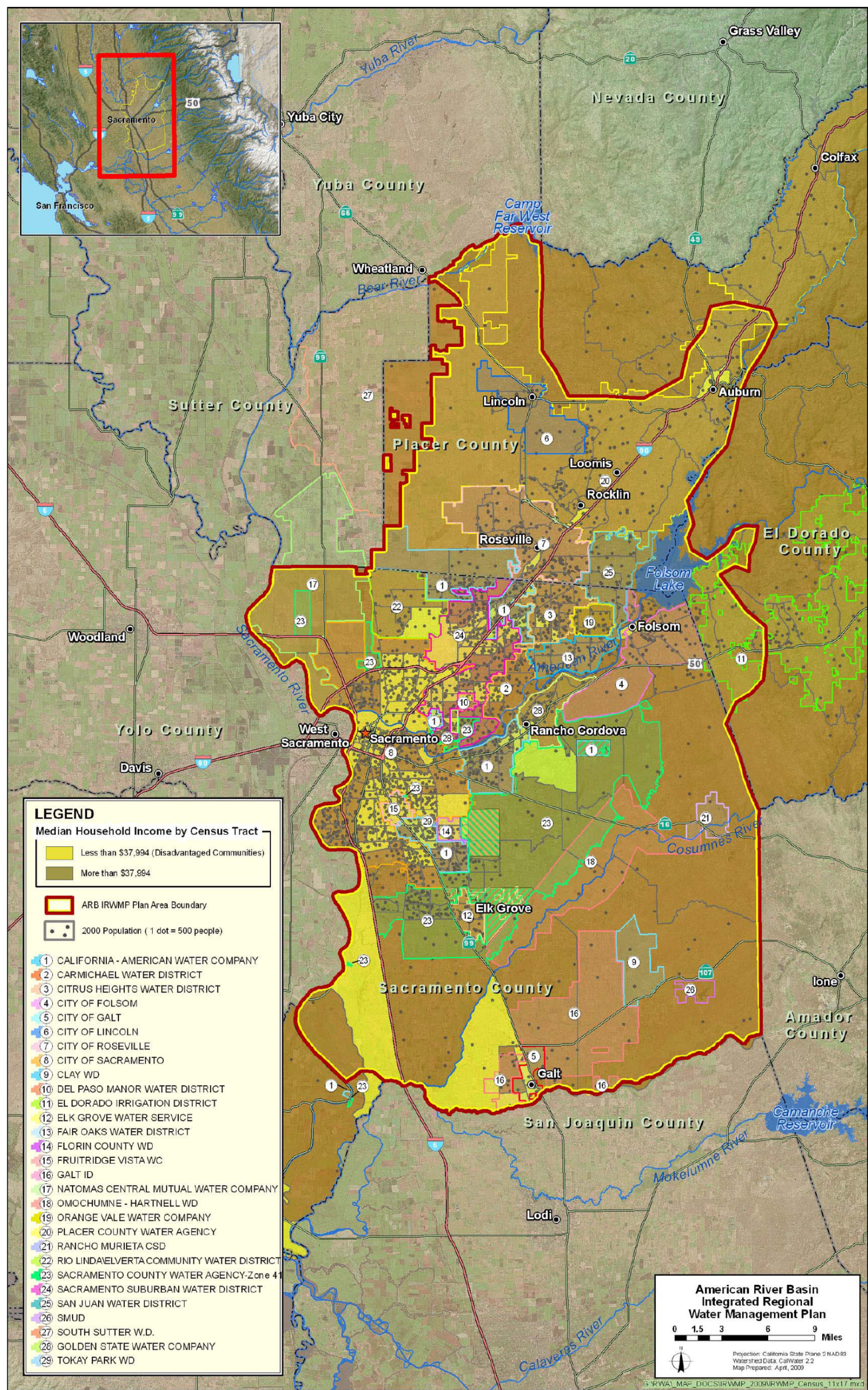


Figure 3: DACs in the ARB Region

Completed Work

Each of the fifteen projects included in this Proposal has some work completed. This section describes the work completed to date for each project, and the work that is expected to be completed prior to the grant award date, assumed to be June 1, 2011.

Project 1 – City of Roseville ASR Program – Phase 2

The evaluations and studies required in order to implement Phase 2 of the City of Roseville ASR Program have all been completed. The studies include the *West Roseville Specific Plan – Feasibility Analysis Report* (City of Roseville, 2002), the *West Roseville Specific Plan FEIR* (EIP Associates, 2004), the *Pilot Scale Cycle Testing at Diamond Creek Well, Final Report* (MWH, 2004), the *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* (MWH, 2009), and the *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* (MWH, 2008). These studies are described in more detail in the following section entitled Existing Data and Studies.

Although design for the above ground facilities for Phase 2 has not yet started, it will primarily consist of revising and updating the plans and specifications prepared for Phase 1 of the City's ASR Program. Phase 1 has already been implemented during which four ASR wells and associated wellhead facilities were designed and constructed. Additionally, the land required for Phase 2 was acquired by the City of Roseville in 2007 and the below ground facilities (i.e., the wells) are complete.

Environmental documentation will be complete prior to June 1, 2011; the Draft ASR Program EIR will be completed in February 2011, followed by a 45-day public review period. The City of Roseville will provide a public notice of intent to adopt the Draft EIR, respond to comments received, and prepare and certify the Final EIR by May 2011.

For the ASR Program, the City acquired a public water system supply permit amendment in 2007 in order to include the Diamond Creek Well as an ASR well. In April 2011, the City will acquire a Waste Discharge Requirement (WDR) permit from the RWQCB for injecting treated water into the aquifer.

Project 2 – Secret Ravine Fish Passage Improvement Project

The City of Roseville has completed all necessary studies for the Secret Ravine Fish Passage Improvement Project and no other evaluations are expected to be completed. Swanson Hydrology & Geomorphology was hired by the City to design the Secret Ravine Fish Passage Improvement Project. The 90% design was completed in February 2009. A Biological Assessment and cultural resource studies were completed, and the City filed a Notice of Exemption for Categorical Exemption under CEQA Code 15333-Small Restoration Projects. Other environmental documentation that has been completed includes:

- The State Office of Historical Preservation completed a historical significance survey for the area May 2009 due to an Indian rock grinding location north of the site (not in the project footprint).
- US Fish and Wildlife Service: Section 7 Consultation was completed July 2009

- National Marines Fisheries Service survey was completed July 2009 as part of U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit requirements.
- Placer County Flood Control District Study was completed June 2009 to satisfy the City of Roseville's Floodplain Encroachment Permit requirements

The California Department of Fish and Game Streambed Alteration Agreement (1600 process) is in place and applications for the U.S. Army Corps of Engineers Section 404 permit and the Regional Water Quality Control Board Section 401 permit have been submitted by Dry Creek Conservancy and have been tentatively approved.

Project 3 – E.A. Fairbairn Groundwater Well Project

Design will begin in February 2011. By June 1, 2011, the 30% design will be substantially complete. All other work for this Project will begin after the grant award date; however, the City does not anticipate that this well design will be significantly different than other wells constructed by the City in the past and, therefore, design should be completed quickly.

Project 4 – Shasta Park Reservoir and Groundwater Project

The following studies have been completed for this project:

- *2005 Water Distribution System Master Plan* (West Yost & Associates, October 2005)
- *Groundwater Well and Reservoir Sizing Study* (City of Sacramento, February 2006)
- *Groundwater Well and Reservoir Location Study* (City of Sacramento, November 2009)

The project is currently in the conceptual design stage. Additional design has not yet started on the proposed project; however, the City of Sacramento does not anticipate that the well or reservoir design will be significantly different than similar projects constructed by the City in the past. Environmental documentation and permit acquisition will begin after the grant award date.

Project 5 – Antelope Creek Water Efficiency and Flood Control Improvement Project

The engineering feasibility study of both the flood control and water efficiency components of this project have been completed and both components are ready to move directly into the permitting and additional design phases. The following studies have been completed:

- *PCWA Canal and Reservoir Feasibility Study Report* (Davids Engineering, May 2005)
- *The 2010 Update to Dry Creek Watershed Flood Control Plan Draft* (Civil Engineering Solutions and RBF Consulting, November 2010)
- *Antelope Creek Water Efficiency and Flood Control Project Flood Damage Reduction Analysis* (RBF Consulting, December 2010)

Design and environmental documentation will continue after the grant award date.

Project 6 – Regional Water Meter Acceleration Project

Land purchase is not required for implementation of this project, nor is the preparation of planning documents as the research conducted to date by the CUWCC and the State of California have verified the effectiveness of water meters in water conservation. Standard designs already exist because of the ongoing nature of the meter retrofit programs in the region. Final Design will be completed after the grant award date, and in June 2011, a Categorical Exemption will be filed as the project will not have any significant adverse impacts on the environment. A Sacramento County Encroachment Permit is the only permit required for the work; it is issued on an annual basis for agency operations and maintenance. The permit will be obtained in January 2011.

Project 7 – Regional Indoor and Outdoor Water Efficiency Project

As the goal of this project is to reduce water consumption and to take steps towards compliance with DWR's 20% water reduction by the year 2020 policy, some planning and engineering documents have already been prepared by the CUWCC, demonstrating the feasibility of the proposed conservation measures included in this Project. The measures to be implemented as part of the Regional Indoor and Outdoor Water Efficiency Project are documented in the CUWCC's Memorandum of Understanding (June 2010). Land purchase and environmental documentation will not be required for the project; all other work that is required for implementation of this project will begin after the grant award date. No permits are required for this project.

Project 8 – SRCS/SPA Recycled Water Project

Work that will be completed prior to the grant award date for the SRCS/SPA Recycled Water Project includes the completion of the necessary assessments and evaluations to determine project viability. In February 2007, SRCS prepared the *Water Recycling Opportunities Study* (SRCS, 2007) and in October 2010, the *Draft SMUD Cogeneration Technical Memorandum* (SRCS, 2010) was completed. These documents are described in more detail in the following section called Existing Data and Studies. No other studies will be required prior to design, which is anticipated to begin after the grant award date. A Negative Declaration for the SRWTP WRF Phase II Expansion Project was completed in September 2009; the SRWTP WRF Phase II Expansion Project allows for expansion of the treatment capacity up to 10 mgd. A separate negative declaration will be drafted for the pipeline portion of the project after the grant award date. The SRCS Treated Wastewater Change Petition WW-28, was completed in July 1996, providing approval under Section 1211 and 1700 of the California Water Code to change the place of use and purpose of use of treated wastewater.

Project 9 – North Antelope Booster Pump Station

Planning documents have been prepared to demonstrate the viability of the project; these include a 2009 *Water System Master Plan* (Brown and Caldwell, 2009) and a technical memorandum that was completed in 2009 entitled *Folsom/Sacramento Suburban Water District Transfer Project – Preliminary Pump Station Site Evaluation*. The project is currently at the 10% design stage. The remaining design stages and environmental documentation will begin after June 1, 2011.

Project 10 – Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project

The land for the proposed project is not currently owned by the Sacramento Suburban Water District (SSWD); however, SSWD has submitted an offer letter to the San Juan Unified School District (SJUSD) for the Coyle Avenue site and Sunrise Recreations and Park District (SRPD) for the Roseview Park site. SJUSD and SRPD are currently finalizing the offers from SSWD, and the finalization and transfer of the properties is expected to occur before June 1, 2011.

The need for this project was first documented in the *2009 Water System Master Plan* (Brown and Caldwell) and then, in October 2008, a *Well Site Evaluation and Acquisition Assistance Report* (Dominichelli and Associates, Inc., 2008) was completed. Subsequent to this report, SSWD drilled a test well in early 2010 to verify the lithology and geology at the Coyle Avenue site. During this investigation, geophysical surveys were performed, verifying the suitability of the site both in terms of geology and groundwater quality as described in the January 2010 letter entitled *Sacramento Suburban Water District: Coyle Avenue Exploration Summary and Well Design Recommendations* (Luhdorff and Scalmanini Consulting Engineers, January 14, 2010). No other studies or evaluations will be completed prior to implementation of the project.

The final design for the ASR wells has already been completed and the advertisement for bid was released in December of 2010. The 10% design of the pump stations and treatment systems has been completed, and subsequent design is currently underway. The 30% design will be completed in March of 2011, with the 60% design completed in April 2011 and the 90% design completed in May 2011. The final design report for the pump stations and treatment systems will be completed by June of 2011 along with a bid package for that portion of the project.

A Draft Initial Study/Negative Declaration (IS/ND) has been prepared and was published for public comment in November 2010. A public meeting will be held in December 2010 to receive comments, and the IS/ND will be finalized thereafter, by February 2011. The following permits have been obtained for the Coyle Avenue and Roseview Pump Stations and Treatment Systems Project:

- A Department of Public Health Permit (DPH) Amendment, which amended SSWD's original permit to add the construction of the wells, pumping stations and treatment facilities, was obtained in December 2010.
- A NPDES Permit Amendment, which will amend SSWD's existing NPDES permit to allow for well discharges to Sacramento County's storm drain system, will be obtained by June 1, 2011.
- A Public Water Supply Amendment, which will amend SSWD's existing DPH permit to allow the District to provide water through its facilities, will be obtained by June 1, 2011.

The bid award for the construction of the ASR wells will be announced in early January of 2011. The Notice to Proceed (NTP) will be released in March of 2011. Construction of one ASR well is anticipated to begin in March of 2011 with the second ASR well shortly thereafter. Completion of both ASR wells is anticipated in June 2011. Construction of the pump stations and treatment systems portion of the project for the Coyle Avenue site and Roseview Park site will be after June 1, 2011.

Project 11 – Willow Hill Pipeline Rehabilitation Project

The City of Folsom already owns the land required for this project, and the following studies have been completed:

- *AWWA Standard Water Balance and Audit Report* (September 2009)
- *Two Year Water Loss Control Program Outline* (March 2010)
- *City of Folsom Groundwater Assessment* (February 2006)

No additional studies are required before implementing the Willow Hill Pipeline Rehabilitation Project. 10% design will be completed by April 2011, while the remaining pieces of design and permitting will begin after the grant award date. A Public Water System Supply Permit, which covers the Willow Hill System, was issued from DPH to the City of Folsom in 2005. A Public Water Supply Amendment will be obtained, if required based on final design. This project is a rehabilitation project of existing infrastructure and will not result in any increase of capacity; therefore, this project is categorically exempt from environmental review under CEQA.

Project 12 – Lower American River Mile 0.5 Aquatic and Riparian Habitat Enhancement

Northwest Hydraulic Consultants (NHC) prepared a Basis of Design Report (BODR) for the Lower American River Mile 0.5 Aquatic Riparian Enhancement Project in June 2009, building upon a number of studies that were previously completed for the project as discussed in the Existing Data and Studies section. 100% (Final) design for the project was completed on June 19, 2009, concurrently with the Basis of Design Report. In order to comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), an Initial Study (IS) and Environmental Assessment (EA) were prepared to evaluate the impacts of the project. Because there were no impacts that could not be mitigated to levels of less-than-significance, a Negative Declaration was adopted as well as a Finding of No Significant Impact (FONSI). The IS and EA were completed in December 2007 by U.S. Army Corps of Engineers and a Notice of Determination and Project Approval was completed May 2008. All necessary permits will be acquired after the grant award date.

Project 13 – Lower Cosumnes River Floodplain Restoration Project

Three studies were completed specific to the Lower Cosumnes Floodplain Restoration Project from 2002 to 2008, and the 10% conceptual engineering design was completed in January 2010. 30% design will be completed substantially by June 1, 2011. Other portions of design will begin after the grant award date, as will environmental documentation and permit acquisition.

Project 14 – OHWD/Rancho Murieta Groundwater Recharge Project

The proposed location of the project is currently owned by a private owner, but the Omoichumne-Hartnell Water District (OHWD) and the Rancho Murieta Community Service District have contacted the land owner and received initial verbal approval to participate in the proposed project. The *Central Sacramento County Groundwater Management Plan* (February, 2006) and the *Murieta Community Services District*

Integrated Water Master Plan (November 2009) were planning studies that were completed that support the project. Design and environmental documentation will begin after the grant award date.

Project 15 – Sleepy Hollow Detention Basin Retrofit

The *Laguna Creek Watershed Management Plan* was completed in May 2009, and 10% design of the project was completed in August 2010. The 30% and 60% designs are expected to be completed in April 2011 and June 2011, respectively. The remaining portions of design and the environmental analysis for CEQA compliance and permit acquisition will begin after the grant award date.

Existing Data and Studies

Many studies have been completed for the projects included in this Proposal. These studies support the projects' site locations, technical feasibility, and provide project background information. The studies completed for each project are summarized in this section.

Project 1 – City of Roseville ASR Program – Phase 2

Many studies have been completed in order to determine and demonstrate the viability of the City's ASR Program. In February 2002, the *West Roseville Specific Plan – Feasibility Analysis Report* (City of Roseville, pages 44-47) stated that there would be constraints to the water that would be available to serve the proposed West Roseville Specific Plan area, a mixed-use development proposal, if no improvements were made on the City of Roseville's Water System. Numerous water supply alternatives were examined to increase the City's water supply, including the implementation of an ASR project. The implementation of an ASR project was found to be able to increase the City's water supply significantly and allow for the development of the West Roseville Specific Plan area.

The *West Roseville Specific Plan FEIR* (EIP Associates, January 2004) was completed on January 9, 2004 and documented the impacts that the proposed West Roseville area would have on the City of Roseville's Water Supply system as well as the local groundwater. It was determined that the City's water supply system would be able to meet the long-term demand from the West Roseville area with the addition of an ASR project and that no negative impacts would be observed on the local groundwater if the ASR project was implemented to meet demands (see Volumes 3 and 4A).

Two cycles of testing were conducted at the Diamond Creek Well, as detailed in the *Pilot Scale Cycle Testing at Diamond Creek Well, Final Report* (MWH, December 2004) and the *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* (MWH, February 2009). The *Pilot Scale Cycle Testing at Diamond Creek Well, Final Report* documented how cycle testing showed very favorable conditions with no apparent adverse impacts on groundwater levels and overall improvements to groundwater quality. Page ES-1 of this report also concluded that the City should continue with its plans with longer, demonstration scale ASR testing. The *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* reported similar findings as the pilot scale test and recommended that the project should be implemented (pages 6.1-6.5).

Project 2 – Secret Ravine Fish Passage Improvement Project

The following studies have been completed:

- *Secret Ravine Adaptive Management Plan* (Dry Creek Conservancy, December 2001) defined a process to restore instream and riparian habitats to sustain native terrestrial and aquatic species of Dry Creek Watershed and to help meet the Central Valley Project Improvement Act goal to double the natural production of Chinook salmon and steelhead. The Plan identified the need to work with the DWR's Fish Passage Improvement Program for fish passage improvements in Secret Ravine (see pages 24 - 27).
- *Dry Creek Watershed Coordinated Resource Management Plan* (December 2003) identified management goals and implementation strategies to meet the objectives defined by the Dry Creek Watershed Council and identified Secret Ravine as containing some of the most suitable habitat conditions in the watershed for spawning and rearing anadromous salmonids and this restoration project to correct inadequate conditions for the upstream movement of adult salmon (see pages 161 - 162).
- *Bulletin 250: Fish Passage Improvement Report* (DWR, 2005) identified potential fish passage projects for implementation by the California Bay-Delta agencies and local interests, including the Secret Ravine Fish Passage Improvement Project (see pages 4-13 – 4-14).
- *Biological Assessment Secret Ravine Fish Passage Improvement Project* (Swanson Hydrology + Geomorphology, March 2009) reviewed the project to determine what affects the proposed project would have on Chinook salmon and steelhead.
- *Secret Ravine Fish Passage Improvement Project, Cultural Resource Assessment* (February 2009) identified that no cultural resources of any type existed on the project site.

Project 3 – E.A. Fairbairn Groundwater Well Project

In October of 2005, the City of Sacramento prepared a *Water Distribution Master Plan* (West Yost & Associates, 2005) which identified additional customer demands due to significant growth in the area. The additional growth and demand requires the need for additional groundwater wells to meet customer demands. The purpose of the 2005 Master Plan, and the 2011 Master Plan currently being developed, is to carefully plan the new facilities to ensure they are constructed properly to effectively and efficiently serve the area in need and to be effectively integrated into the City's existing water system. The City of Sacramento's Water Master Plan will be completed in November 2011.

Project 4 – Shasta Park Reservoir and Groundwater Project

The following studies have been completed for this project:

- 2005 Water Distribution System Master Plan (October 2005)
- Groundwater Well and Reservoir Sizing Study (February 2006)
- Groundwater Well and Reservoir Location Study (November 2009)

The *Water Distribution System Master Plan* (West Yost & Associates, 2005) identified additional customer demands due to significant growth in the area, and documented the need for additional groundwater wells to meet those demands. The master plan also identified the need for additional water storage in the southeast portion of Sacramento to help maintain service pressure through peak demand periods and to provide additional emergency and fire suppression water supply.

The *Groundwater Well and Reservoir Sizing Study* (West Yost & Associates, 2006) determined that a 3 MG reservoir would meet the needs as described in the Water Distribution System Master Plan. The *Groundwater Well and Reservoir Location Study* (City of Sacramento, 2009) compared different locations for the groundwater well and reservoir. The criteria for each site included hydraulics, constructability, land acquisition cost, regulatory approval, facility cost, extent of disruption to existing customers, and compatibility for the proposed uses. The preferred location for the well and reservoir was determined to be the Sacramento Housing and Redevelopment Agency property, which is also referred to as the Shasta Park site.

The City of Sacramento's updated Water Master Plan will be completed in November 2011. Based on work completed to date, this plan recommends a conjunctive use program and provides details about the Shasta Park Reservoir and Well Project. No other planning documents are required prior to design of this project. The cost to prepare the 2011 Master Plan is not included in the project budget; neither grant funds nor local match is being sought for its preparation.

Project 5 – Antelope Creek Water Efficiency and Flood Control Improvement Project

The following studies have been completed:

- *PCWA Canal and Reservoir Feasibility Study Report* (Davids Engineering, May 2005) examined three studies, including a canal lining feasibility study, aimed at improving the operational efficiency of the water distribution system. The canal lining feasibility investigated the cost effectiveness of previously completed lining efforts and the feasibility of implementing additional lining projects, including the currently proposed project.
- *The 2010 Update to Dry Creek Watershed Flood Control Plan Draft* (Civil Engineering Solutions and RBF Consulting, November 2010) has identified the Antelope Creek Water Efficiency and Flood Control Project as the number one ranked regional project for implementation based on flood mitigation and cost. The Plan is expected to be finalized by March or April 2011.
- *Antelope Creek Water Efficiency and Flood Control Project Flood Damage Reduction Analysis* (RBF Consulting, December 28, 2010) provided an economic analysis of flood damage reduction that can be expected as a result of implementation of the proposed project.

Project 6 – Regional Water Meter Acceleration Project

No assessment or evaluation studies were performed or will be performed to assess the feasibility of this project; research conducted to date by the CUWCC and the State of California verify the effectiveness of water meters in water conservation.

Project 7 – Regional Indoor and Outdoor Water Efficiency Project

The CUWCC published a *Memorandum of Understanding Regarding Urban Water Conservation in California* (June 2010) that had the purpose of expediting implementation of reasonable water conservation measures in urban areas and establishing assumptions for use in calculating estimates of reliable future water conservation savings from proven and reasonable conservation measures. The MOU describes how to implement each of the best management practices (BMPs), provides a recommended implementation schedule, specifies the minimum level of coverage for compliance, requires documents for BMP implementation, and states water savings assumptions. The measures to be implemented as part of the Regional Indoor and Outdoor Water Efficiency Project are documented in the CUWCC's MOU and have been found to be effective in water conservation.

Project 8 – SRCSD/SPA Recycled Water Project

In February 2007, SRCSD prepared the *Water Recycling Opportunities Study*, a planning document which served to identify potential water recycling opportunities; engage potential water recycling partners and stakeholders; develop, assess, and prioritize potential water recycling projects; and provide a strategy to further develop and implement the projects initially selected to move forward in achieving the stated goals of the large-scale Water Recycling Program. The *Water Recycling Opportunities Study* (WROS) employed a three-step approach to defining potential project: develop target areas, identify water recycling opportunities, and develop potential recycled water project, complete with brief project descriptions.

More recently, in October 2010, SRCSD, the City, and the Sacramento Power Authority (SPA) prepared the *Draft SMUD Cogeneration Technical Memorandum* which evaluated the feasibility of providing recycled water service in-lieu of existing potable surface water supplies to the SPA's Cogeneration Plant in south Sacramento. Demand for potable and recycled water was determined, water quality parameters for recycled water were identified, planning level cost estimates were developed, preliminary route alignments were identified, and technical feasibility was discussed. The results of the evaluation indicate that replacing potable water use with recycled water is a good fit and is technically feasible.

Project 9 – North Antelope Booster Pump Station

The need for this project was first documented in the *2009 Water System Master Plan* (Brown and Caldwell). This report was prepared to provide guidance to Sacramento Suburban Water District (SSWD) in managing their groundwater supplies to ensure quality and quantity, and to maximize the use of the existing system capacity. The report recommended that SSWD continue to implement a conjunctive use strategy to meet District needs, and to encourage other water purveyors to reduce their groundwater use by maximizing conjunctive use (page 15-2). While SSWD has sufficient water to meet their current and projected future demands, the addition of the conjunctive use program as part of SSWD operations increases the ability of SSWD to provide water to other districts in the region not capable of increasing their own water supply (pages 7.3-7.7), thereby providing a regional benefit.

In June of 2009, a Technical Memorandum was completed entitled *Folsom/Sacramento Suburban Water District Transfer Project – Preliminary Pump Station Site Evaluation*. This technical memorandum made

preliminary site layout recommendations for a booster pump station and compared the facility costs at two potential locations. A site location recommendation was made based on construction cost, feasibility, and impacts to pressure in the SSWD system.

Project 10 – Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project

The need for this project was first documented in the *2009 Water System Master Plan* (Brown and Caldwell, 2009). This report was prepared to provide guidance to SSWD in managing their groundwater supplies to ensure quality and quantity, and to maximize the use of the existing system capacity. The report recommended that SSWD continue to implement a conjunctive use strategy to meet District needs, and that they encourage other water purveyors to reduce their groundwater use by maximizing conjunctive use (page 15-2). While SSWD has sufficient water to meet their current and future demands, the addition of the conjunctive use program as part of SSWD operations increases the ability of SSWD to provide water to other districts in the region not capable of increasing their own water supply (pages 7.3-7.7), thereby providing a regional benefit.

In October of 2008, a *Water Well Site Evaluation and Acquisition Assistance Report* (Dominichelli and Associates, Inc.) was completed, providing a list of suitable parcels within SSWD's boundaries that met the criteria for new production well sites. Included on this list was the Coyle Avenue site (page 20) and the Roseview Park site (page 4). The criteria for identifying suitable parcels were:

- An available area of approximately 6,000 square feet
- A minimum pipeline tie-in of 12-inches
- Proximity to sewer and drainage facilities
- Reasonable access
- Presence of three-phase power in the vicinity of the site

Subsequent to this report, SSWD drilled a test well in early 2010 to verify the lithology and geology at the Coyle Avenue site. During this investigation, geophysical surveys were performed, verifying the suitability of the site both in terms of geology and groundwater quality. As described in the January 2010 letter entitled *Sacramento Suburban Water District: Coyle Avenue Exploration Summary and Well Design Recommendations* (Luhdorff and Scalmanini Consulting Engineers, January 14, 2010), data gathered during the test hole exploration "...indicate that this site would be suitable for a municipal water supply well with a design capacity of 1,400 gallons per minute (gpm)."

Project 11 – Willow Hill Pipeline Rehabilitation Project

The following studies have been completed for this project:

- *AWWA Standard Water Balance and Audit Report* (September 2009) evaluated metered water data and system data to assess water loss volumes within the water distribution network.
- *Two Year Water Loss Control Program Outline* (March 2010) identified and prioritized distribution system leaks and repairs.

- *City of Folsom Groundwater Assessment* (February 2006) assessed the feasibility of using groundwater for municipal demands.

No additional studies are required before implementing the Willow Hill Pipeline Rehabilitation Project.

Project 12 – Lower American River Mile 0.5 Aquatic and Riparian Habitat Enhancement

A Basis of Design Report (BODR) was completed for the Lower American River Mile 0.5 Aquatic Riparian Enhancement Project in June 2009, prepared for the U.S. Army Corps of Engineers (USACE) by Northwest Hydraulic Consultants (NHC). The Basis of Design Report built upon previous work by USACE and NHC, including the following studies:

- USACE Sacramento District, *Environmental Assessment and Initial Study: Lower American River Mile 0.5 Mitigation Site, Sacramento River Bank Protection Project*, 2007
- NHC, *(Preliminary) Lower American River: River Mile 0.5 Right Mitigation Site, Planset* submitted to SAFCA 2005
- MBK Engineers, *Peak Flows, Technical Memorandum from MBK Engineers to Northwest Hydraulic Consultants*, October 2006
- MBK Engineers, *Lower American River- RM 0.5 Mitigation Project: Velocity for Base Conditions and Project Conditions*, 2008

The BODR provided details for creating aquatic and riparian habitat to mitigate for unavoidable habitat losses due to past and future levee improvements and bank protection activities to ensure flood protection for the Sacramento metropolitan area. The project consists of a graded bench along the right bank of the American River, varying in elevation from four to 12 feet and covering about two acres, sloping channels that drain the project site to the American River, vegetation zones with species appropriate for the frequency and duration of inundation, habitat elements to maximize juvenile salmon habitat and erosion protection. The BODR provides design background to the project plans, design criteria for hydraulic loading and includes the detailed design of the aquatic habitat elements.

Project 13 – Lower Cosumnes River Floodplain Restoration Project

To date, there have been three studies completed that are specific to the Lower Cosumnes Floodplain Restoration Project. These studies are briefly described below:

- The *Cosumnes River Preserve Management Plan* (Kleinschmidt, March 2008) documented the management plans for the Cosumnes River Preserve for the next ten years. The two overarching goals in this plan were to improve stewardship of the lands in the Cosumnes River Watershed and to restore and maintain, at sustainable conditions and populations, the native biological communities and the resident and migratory species that are depend on these communities. These objectives, along with the IRWMP goals and objectives, were used to guide the development of this project.

- The *Lower Cosumnes River Watershed Assessment* (December 2006) provided a baseline characterization of the current physical, biological, and cultural resources associated with the Cosumnes River. Hydrology, geomorphology, biological resources, and cultural resources data was collected and summarized in this assessment.
- The study entitled *Restoring Floods to Floodplains: Riparian and Floodplain Restoration at the Cosumnes River Preserve* (Swenson et al., 2002) discussed the benefits that intentional levee breaches have brought to the Cosumnes River ecosystem. This approach to restoration efforts is cheaper than other active measures that have been implemented on the Cosumnes River.

Project 14 – OHWD/Rancho Murieta Groundwater Recharge Project

The *Central Sacramento County Groundwater Management Plan* (MWH, February 2006) documented water supplies and water uses within the Central Sacramento County and determined the long-term sustainable yield of groundwater from the Central Basin to be 273,000 acre-feet per year (AFY). Groundwater provides a substantial amount of the overall water supply for the region, and a goal of the groundwater management plan was to maintain or increase the amount of groundwater stored in the basin over the long term.

The *Planning and Implementation of Groundwater Storage and Recovery Systems* report (Robertson-Bryan, Inc., 2010) summarizes the phase-based plan for a groundwater recharge pilot project in south Sacramento, as well as preliminary investigations which revealed a great potential for the success of the recharge project.

The *Rancho Murieta Community Services District Integrated Water Master Plan* (November 2009) evaluated the water supply and water demands for RMCS D and made recommendations for addressing the District's susceptibility to reductions in available water supply due to drought, as well as options for reducing reservoir drawdowns in average years. This plan identified using groundwater supply in a conjunctive use scenario to significantly reduce reservoir draw downs and eliminate drought deficits.

Project 15 – Sleepy Hollow Detention Basin Retrofit

The *Laguna Creek Watershed Management Plan* (May 2009) was completed in 2009; no other assessments or evaluations are required prior to project design.

Program Preferences

The implementation of this Proposal meets multiple Program Preferences presented in the *Proposition 84 & Proposition 1E IRWM Guidelines* (Guidelines, DWR, August 2010) including the following:

- Include regional projects or programs
- Effectively integrate water management programs and projects within a hydrologic region
- Effectively resolve significant water-related conflicts within or between regions
- Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program

- Address critical water supply or water quality needs of disadvantaged communities
- Effectively integrate water management with land use planning
- Address Statewide priorities

Additional detail regarding how this Proposal and the individual projects contribute to the Program Preferences is included in Attachment 11.

Project Map

The locations of the projects included in this Proposal are shown in Figure 2. Monitoring locations for the projects will generally be at the project sites and in the general vicinity of the construction. More detailed maps for each project are included in the Project Tasks section of this attachment.

Project Timing and Phasing

While the projects in this Proposal are ready to proceed upon award notification, there is flexibility in terms of delaying commencement of projects. RWA is prepared to work with DWR among or within the projects to accommodate the timing of the availability of appropriations from the Proposition 84 bond.

Although seven of the fifteen projects included in this Proposal are not part of a phased or larger project, the eight remaining projects are either part of a multi-phased project or a larger program. All of the projects in this Proposal are stand-alone and do not require the implementation of other phases or projects to provide benefits to the ARB Region. Table 2 shows which projects are part of a multi-phased projects and which are not.

Table 2: Phased and Non-Phased Projects

Project No.	Project Name	Part of a Phased Project?
1	City of Roseville ASR Program – Phase 2	Yes
2	Secret Ravine Fish Passage Improvement Project	No
3	E.A. Fairbairn Groundwater Well Project	No
4	Shasta Park Reservoir and Well Project	No
5	Antelope Creek Water Efficiency and Flood Control Project	Yes
6	Regional Water Meter Retrofit Acceleration Project	Yes
7	Regional Indoor and Outdoor Water Efficiency Project	Yes
8	Sacramento Regional County Sanitation District/ Sacramento Power Authority Recycled Water Project	Yes
9	North Antelope Booster Pump Station Project	No
10	Coyle Avenue & Roseview Pump Stations and Treatment Systems Project	Yes
11	Willow Hill Pipeline Rehabilitation Project	Yes
12	Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project	No
13	Lower Cosumnes River Floodplain Restoration Project	No
14	OHWD / Rancho Murieta Groundwater Recharge Project	Yes
15	Sleepy Hollow Detention Basin Retrofit	No

The projects that are part of a multi-phased project are described in more detail as follows.

Project 1 – City of Roseville ASR Program – Phase 2

Implementation of the City of Roseville’s ASR Program will be completed in three phases. Phase 1 has been implemented in which the City constructed four wells, all of which are equipped for both extraction and injection. Phase 2 of the ASR project, for which Prop 84 funding is being requested, consists of completing above-ground improvements and installing well heads for two wells that have already been installed. The Phase 2 portion of the ASR Program will include the design and construction of the above-ground infrastructure for the Hayden Parkway Well and West Park #1 Well. Seven additional wells are planned as components of previously-approved Specific Plan projects and approved along with certification of those Specific Plan’s EIRs. These wells are planned for future phases and will be completed at a pace of about one per year. The ASR Program can be implemented incrementally; the addition of more wells after Phase 2 is constructed will not affect the operation of Phase 2, but rather, it will provide more wells to allow for greater injection/extraction. Once the above-ground wellhead facilities are designed and constructed for the Hayden Parkway Well and the West Park #1 Well, they can be operated and effectively used as ASR wells, independently injecting water into the groundwater basin for later extraction during dry periods.

Project 5 – Antelope Creek Water Efficiency and Flood Control Improvement Project

This project is proposed in two phases; the first phase is the design and construction of concrete gunite lining and erosion control measures along PCWA's Antelope Canal combined with the design and construction of the first (in a series of two) on-channel flood control weirs along Antelope Creek in the vicinity of Atlantic Street in Roseville. The second phase of the project would include the gunite lining and erosion control measures along PCWA's Caperton Canal combined with the design and construction of the second upstream flood control weir on Antelope Creek in the vicinity of the Roseville Parkway crossing. Only the first phase of the project is proposed for funding in this Prop 84 IRWM grant proposal. The Antelope and Caperton canals are geographically separate conveyance systems with no common interconnections throughout their separate reaches. Both lie within the Antelope Creek watershed. The lining measures and benefits realized from them are distinct to each canal and to the portions of the Antelope creek watershed they lie within, with no timing impacts.

Project 6 – Regional Water Meter Acceleration Project

The Regional Water Meter Acceleration Project is part of an overall effort to fully meter the Region by 2025. Each meter is fully functional upon installation, so the installation of meters under this project will operate on a stand-alone basis and will accelerate completion of the overall effort to meter the region.

Project 7 – Regional Indoor and Outdoor Water Efficiency Project

The Regional Indoor and Outdoor Water Efficiency Project consists of four conservation components of the larger Sacramento Regional Water Conservation Blueprint. The Blueprint was developed by water purveyors in the greater Sacramento region to increase the level of water conservation and ensure a long-term water supply for the region's urban and agricultural users. The plan promotes water management strategies that support environmental needs in the lower American River as well as the state's goal of a 20% reduction in per-capita water use by 2020. The four project components can be implemented independent of the overall Blueprint, and builds on other existing programs in the region.

Project 8 – SRCSD/SPA Recycled Water Project

The SRCSD/SPA Recycled Water Project is not currently a multi-phased project, but there is potential for expansion in the future. The size of the recycled water transmission pipeline to serve the Cogeneration Plant could be upsized to allow other recycled water users to connect in the future through other expansion phases. This does not affect the operation of the project upon construction completion.

Project 10 – Coyle Avenue and Roseview Pump Stations and Treatment Systems Project

The Coyle Avenue and Roseview Pump Stations and Treatment Systems Project will add two additional groundwater wells and wellhead facilities to SSWD's North Service Area (NSA). SSWD's Master Plan prepared in 2009 stated that the NSA is low on reserve capacity and due to the age of the existing groundwater infrastructures additional groundwater sources would be required. Additional groundwater sources will be added in the next five to ten years to provide more reliability to the system as required. The two groundwater wells that comprise this project are stand-alone and will begin operating upon construction completion to provide SSWD an additional water supply by producing a maximum of approximately 5,750 acre-feet per year of groundwater.

Project 11 – Willow Hill Pipeline Rehabilitation Project

The Willow Hill Pipeline Rehabilitation Project is a major element of the City of Folsom's System Operation Review (SOR) Program, which includes system efficiency improvements, conservation and water marketing. This project is critical on its own, with or without the Folsom SOR Program, as it will repair a system leak and to save up to 1 million gallons per day of water.

Project 14 – OHWD/Rancho Murieta Groundwater Recharge Project

This project will be constructed in three phases. Phase 1 consists of the installation of a diversion unit and construction of an infiltration basin. During Phase 2, a recovery well and conveyance pipeline will be constructed. In Phase 3, an inflatable Obermeyer weir is installed to improve diversion capabilities. OHWD is requesting funding for Phases 1 and 2 of this project, which can be operated without Phase 3. Phase 3 will be constructed later and would improve the efficiency of the project, but is not necessary for the function of the overall project. Phase 3 of the project will be funded through OHWD's resources and future state and federal grants, if available.

Completion of Phases 1 and 2 would allow OHWD and Rancho Murieta Community Services District to recharge surface water from Cosumnes River into the aquifer and recover a portion of that water for RMCSD demands during dry periods. The project can operate on a stand-alone basis and can be fully functional without implementation of Phase 3.

Data Management and Monitoring Deliverables

The ARB IRWM region adopted data management and plan performance monitoring standards in its May 2006 IRWM Plan. Associated with this, a project database is currently maintained by RWA and a website is used to disseminate plan information (<http://www.rwah2o.org/rwa/programs/irwmp/>). RWA will be updating its IRWM Plan in 2011 and 2012 as described in the region's September 28, 2010 IRWM Planning Grant Application. One of the key tasks described in the application is the development of a web-based interface where information will be collected and disseminated. The interface will use an input form that, at a minimum, will include all information required to complete a project review process as described on page 21 of the DWR IRWM Guidelines (August 2010). This interface will populate a database developed to store and disseminate information via the web interface. The interface will include an option to upload associated files (for example, a PDF file of project plans). Any required monitoring specific to a project will be collected consistent with applicable standards (for example, SWAMP and CASGEM) and reported to the State. These substantial improvements are scheduled to be completed by August 2011, so they will be in place generally coincident with beginning implementation of the projects in this Proposal. Proponents of the project in this Proposal would be required through a Project Agreement with RWA to acknowledge and commit to the requirements if providing data and monitoring consistent with IRWM guidelines.

Project Tasks

Summarized in the following sections is a project work plan for each of the fifteen projects contained within this Prop 84 Implementation Grant Proposal. Each project work plan contains a summary

description of the project plus detailed descriptions of each task that will be conducted to implement the project. These same tasks are reflected under the same project headings in Attachment 4 - Budget and Attachment 5 - Schedule, where the task-specific and overall project budgets and schedules are presented.

Project 1: City of Roseville ASR Program – Phase 2

Benefits of this project include:

- Increasing water supply reliability by injecting 480 AFY into the local groundwater basin and extracting 480 AFY on an average annual basis from the local basin
- Maintaining groundwater elevations as close to current elevations as possible
- Delivering an annual average of 480 AFY of water to the West Roseville Area (Zone 4)
- Decreasing dependence on surface water in the Sacramento-San Joaquin Delta watershed

Detailed Description

The City of Roseville's Aquifer Storage and Recovery (ASR) Program has been developed to improve the City's water supply reliability, maintain groundwater as a sustainable resource, and meet regional conjunctive use program goals. While water demands have been steadily increasing over time, the City of Roseville (City) and the American River Basin IRWM Region have been affected by:

- Extended drought and wet periods
- An increased push to dedicate surface water for environmental purposes
- Declining groundwater levels
- On-going and potential impacts to surface water quality and groundwater quality

The ASR program is an element of a comprehensive, regional conjunctive use program being implemented in southern Placer County and northern Sacramento County. The regional conjunctive use program provides reliability for local water purveyors and opportunities to increase flows to the San Francisco Bay/Sacramento-San Joaquin Delta (Delta) system during dry periods through groundwater banking and surface water exchange. The City's ASR program consists of injecting available treated surface water supplies from the City's water treatment plant (WTP). Most injection would occur during fall, winter, and spring months when water is plentiful in Folsom Lake and system demands are lowest due to precipitation. Summer injection would occur only when water availability to the City exceeds customer demands. The aquifer used for groundwater banking is identified as the North American Subbasin (basin number: 5-21.64), as defined in DWR's Bulletin 118. Groundwater extraction would occur when the City's surface water supplies are cut back in response to drought conditions or in emergency situations.

The objective of the ASR program, in the context of the regional conjunctive use program referred to as the Regional Water Master Plan (RWMP), is developing equitable, cost-effective water resource

management strategies for enhancing water supply reliability, and operational flexibility for water users of Folsom Lake, the lower American River, and the connected groundwater basin. The City's ASR program is to address the above challenges while improving groundwater supply reliability. The project objectives include:

- Maximizing the City's ability to fully utilize its surface water entitlements while improving the City's overall water supply reliability;
- Managing the groundwater aquifer as a sustainable resource to ensure groundwater availability in times of drought; and
- Meeting regional conjunctive use program goals as outlined in the City's General Plan, Water Forum Agreement, Western Placer County Groundwater Management Plan, and American River Basin IRWM Plan.

In 2004, the City conducted Phase I pilot-scale ASR cycle testing at the Diamond Creek Well (MWH, December 2004). The objective of pilot-scale testing was to evaluate the technical feasibility of ASR at the Diamond Creek Well (DCW) and to identify any technical constraints. The cycle test was to inject, store, and extract potable water from the City's WTP while collecting ample data necessary to evaluate the overall technical feasibility of longer-term cycle testing at the DCW. The DCW and pump station are located within the City's jurisdictional boundaries, in the Western Placer County Groundwater Management Plan area and the North American Groundwater Subbasin. The DCW is a 20-inch diameter backup water supply well with the capability of injecting and extracting water into and out of the confined aquifer. The cycle test was performed from May 5, 2004 to September 20, 2004 and consisted of three general phases of data collection: baseline, injection, and extraction. Baseline monitoring and sampling consisted of a series of monitoring and sampling events performed from May 5, 2004, to June 16, 2004. During this period, no water was injected at the DCW; however, some limited volumes of groundwater were extracted when unrelated DCW construction testing was performed. The injection portion of the cycle test consisted of 26 days of continuous surface water injection at an average flow rate of approximately 1,375 gallons per minute (gpm) followed by 2 days of rest or storage. The total volume of water injected was 158 acre-feet (AF). The injection portion of cycle testing consisted of four monitoring and sampling events performed from June 16, 2004, through July 12, 2004. During the extraction cycle of the test, flow rates averaged approximately 3,434 gpm. Three extraction phases were separated by 8 and 31 days of rest. The total volume of water extracted during all three phases was 439 AF, representing 278 percent of injected water volume. The extraction portion of the cycle test consisted of 11 monitoring and sampling events conducted at the DCW and 6 monitoring and sampling events at the monitoring wells, performed in 3 extraction phases lasting 12, 6, and 11 days, and extending from July 14 through 26, August 3 through 9 and September 9, through 20, 2004, respectively. Pilot scale testing was successful as the DCW and pump station infrastructure and nearby monitoring equipment operated effectively, and no adverse groundwater quality impacts were observed.

Subsequently, the City performed a longer demonstration testing (Phase II testing) at the DCW from 2007 to 2008 to assess the operational parameter of ASR in Roseville (MWH, February 2009). Two coequal objectives were developed for this work: to better understand operational constraints during longer

durations of injection, storage, and extraction that will likely mimic future full-scale operational conditions, and to study the water quality effects of ASR on the local groundwater basin with the fate and transport of treated surface water in the aquifer. The injection phase of testing began on December 14, 2005, and ended on May 5, 2006, a period of 142 days. The storage phase begun immediately after the injection phase was completed. During the injection phase, the average rate of injection was approximately 1,356 gpm and the total volume of water injected into the aquifer was approximately 830 AF. From the start of the extraction phase, July 17, 2007 through the end of the extraction phase on February 28, 2008, approximately 2,140 AF of water were extracted from the DCW. Based on City collected Title 22 DPH compliance sampling and analysis, all extracted water during Phase II demonstration testing met drinking water standards.

Based on the results of both testing cycles, ASR is a viable technology for the City of Roseville. The City is in the process of preparing a Final Environmental Impact Report (EIR) for the ASR Program. The ASR Program will ultimately include the use of thirteen specially designed wells capable of both water injection and groundwater extraction.

Implementation of the City of Roseville's ASR Program will be completed in multiple phases. Phase 1 has been implemented. Under this project phase, the City constructed four wells, all of which are equipped for both extraction and injection. Phase 2 of the ASR project, for which funding is being requested, consists of completing above-ground improvements and installing well heads for two wells that have already been installed. The Phase 2 portion of the ASR Program will include the design and construction of the above-ground infrastructure for the Hayden Parkway Well and West Park #1 Well. Each well will have an injection capacity of 900 gpm and an extraction capacity of 1,800 gpm. With these two wells operational, the City will be able to inject an additional average of 480 acre-feet per year (AFY) into the underlying groundwater basin during normal and wet years, and withdraw an annual average of 480 AFY. Seven additional wells that have been planned as components of previously-approved Specific Plan projects and approved along with certification of those Specific Plan's EIRs will be constructed in future phases.

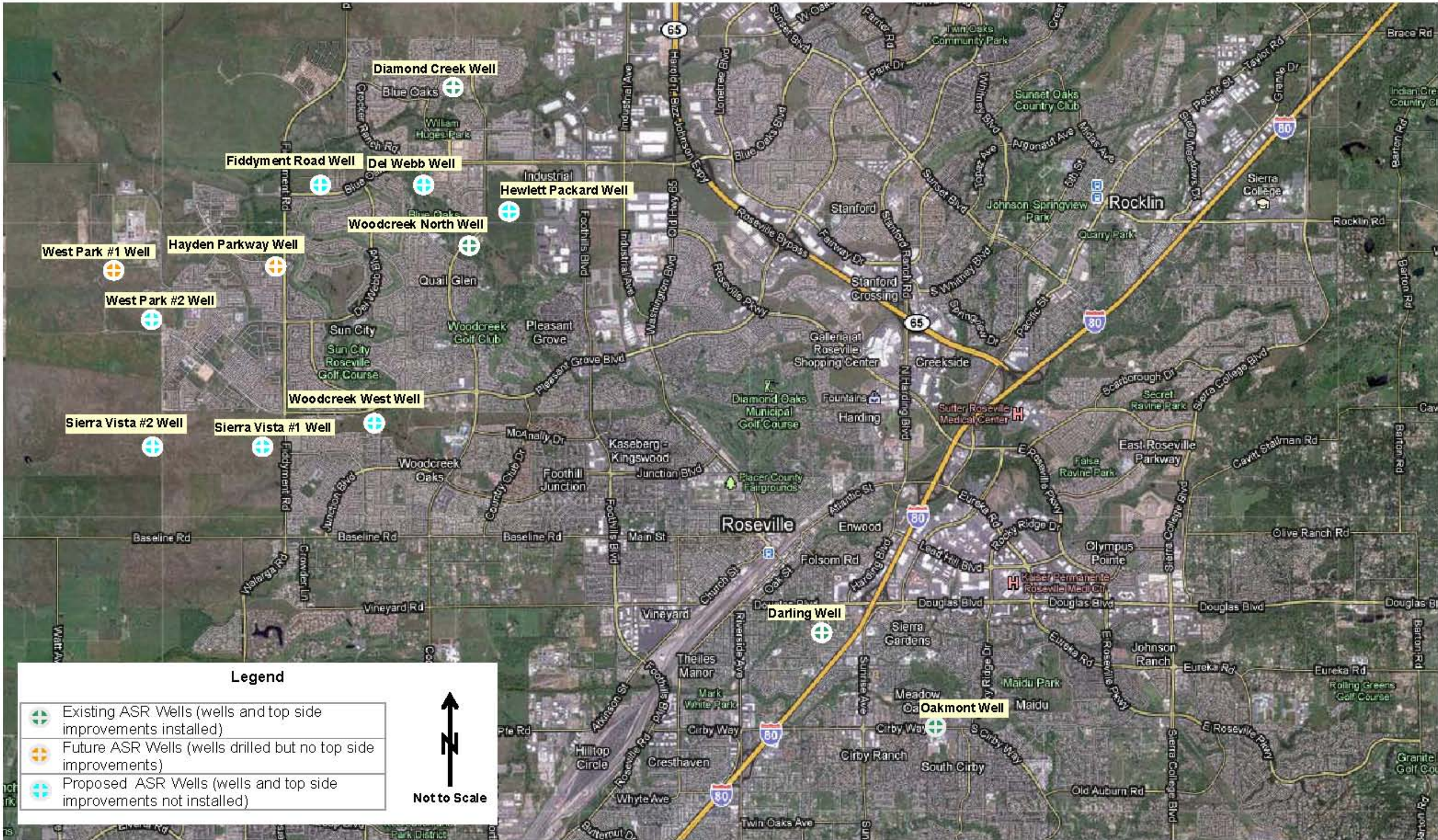


Figure 4: Location of Hayden Parkway and West Park #1 Wells

Budget Category (a): Direct Project Administration Costs

Direct project administration includes, but is not limited to, general project management functions (e.g. invoice approval, schedule review), project status meetings, preparation of quarterly reports and normal communications between the City and RWA. Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes council communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, the City of Roseville has entered into an agreement with RWA through which any grant award reserved for the City can be directed for use in project funding.

Task 2: Labor Compliance Program

The City of Roseville plans to use a third-party's labor compliance program, as was done for the previous phases of the project. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Roseville ASR project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of June 2013. The City of Roseville will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

Land and rights-of-way acquisition are not required for the City of Roseville ASR Program – Phase 2; the City obtained the land in 2007 through annexation as part of the Specific Plan Process.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Task 4: Assessment and Evaluation

Many studies have been completed in order to determine and demonstrate the viability of the City's ASR Program. In February 2002, the *West Roseville Specific Plan – Feasibility Analysis Report* (City of Roseville, pages 44-47) stated that there would be constraints to the water that would be available to serve the proposed West Roseville Specific Plan area (water distribution system Zone 4), a mixed-use development proposal, if no improvements were made on the City of Roseville's Water System. Numerous water supply alternatives were examined to increase the City's water supply, including the implementation of an ASR project. The implementation of an ASR project was found to be able to increase the City's water supply significantly and allow for the development of the West Roseville Specific Plan area.

The *West Roseville Specific Plan FEIR* (EIP Associates, January 2004) was completed on January 9, 2004 and documented the impacts that the proposed West Roseville area would have on the City of Roseville's Water Supply system as well as the local groundwater. It was determined that the City's Water Supply System would be able to meet the long-term demand from the West Roseville area with the addition of an ASR project and that no negative impacts would be observed on the local groundwater if the ASR project was implemented to meet demands (see Volumes 3 and 4A).

Two cycles of testing were conducted at the Diamond Creek Well as detailed in the *Pilot Scale Cycle Testing at Diamond Creek Well, Final Report* (MWH, December 2004) and the *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* (MWH, February 2009). The *Pilot Scale Cycle Testing at Diamond Creek Well, Final Report* documented how cycle testing showed very favorable conditions with no apparent adverse impacts on groundwater levels and overall improvements to groundwater quality. Page ES-1 of this report also concluded that the City should continue with its plans with longer, demonstration scale ASR testing. The *Aquifer Storage & Recovery Program Phase II Demonstration Testing at the Diamond Creek Well Final Report* reported similar findings as the pilot scale test and recommended that the project should be implemented (pages 6.1-6.5).

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

Phase 1 of the City's ASR Program has already been implemented in which four ASR wells were designed and constructed. The plans and specifications prepared for these wells will be revised and updated for the Phase 2 Project, which includes the installation of wellhead facilities on the two installed wells in addition to above-ground improvements. Copies of the existing well specifications are included in the supporting documentation for this report. Design will be completed by City of Roseville staff by November 2011. From the final plans and specifications, a bid package will be developed for the Hayden Parkway Well and West Park #1 Well above-ground infrastructure.

For this project, the City of Roseville's Design and Construction Standards will be used as well as any other applicable standards (e.g. California Water Well Standards). The City's Design and Construction Standards were designed to provide direction in the application of improvements which are to be dedicated to the public and accepted by the City for operation and maintenance and to provide protection to the public. Standards to be utilized in this project include City Construction Standards (CS) Sections 11, 12, 21, 31, 56, 81, 82, 84, 85, 86, 91, 101, 111, 141, and 151; and City Design Standards (DS) Sections 1 through 6, and Sections 8 through 15.

Task 5 Deliverables:

- Final Plans and Specifications for the Hayden Parkway Well and West Park #1 Well Above-Ground Infrastructure
- Bid Package for the Hayden Parkway Well and West Park #1 Well Above-Ground Infrastructure

Task 6: Environmental Documentation

The EIR for the West Roseville Specific Plan was finalized on January 9, 2004 and approved by the City of Roseville. The Specific Plan and associated EIR covered the well site selection and construction portions of the ASR project. In order to be compliant with CEQA, a project-specific EIR will be completed for the City's ASR Program. Implementation of the City-wide ASR Program will be under the Regional Water Quality Control Board (RWQCB) permit. The Draft ASR Program EIR has been started and will be completed in February 2011, followed by a 45 day public review period. The City of Roseville will provide a public notice of intent to adopt the Draft EIR, respond to comments received, and prepare and certify the Final EIR by May 2011. The budget associated with the drafting and adoption of the EIR is not included in Attachment 4, as the project is not requesting grant funds nor will funding match be used for this task.

Task 6 Deliverables:

- City of Roseville ASR Program Draft and Final EIR

Task 7: Permitting

For the ASR Program, the City acquired a public water system supply permit amendment in 2007 in order to include the Diamond Creek Well as an ASR well. In April 2011, the City will acquire a Waste Discharge Requirement (WDR) permit from the RWQCB for injecting treated water into the aquifer. As the wells are constructed and brought online, the CDPH needs to approve the use of the wells for public water supply. Therefore, after the construction of the above-ground infrastructure at the two well sites, the City will file another Public Water Supply Amendment.

Task 7 Deliverables:

- WDR permit from RWQCB (to be completed by April 2011)
- Public Water System Amendment

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

The Bid Package to be used for bid solicitation will be prepared under this task, and will include the final plans and specifications for the Hayden Parkway Well and West Park #1 Well Above-Ground Infrastructure that were prepared during Task 5. Also as part of this task, the City will publish a Notice to Bidders, review the bids, select a bid, and negotiate the contract. The City anticipates awarding the Notice to Contractors in February 2012. Construction submittal will include Insurance Requirements, the Notice to Proceed (NTP), and a Stormwater Pollution Prevention Plan (SWPPP).

Task 8 Deliverables:

- Public Notice to Bidders
- Notice to Proceed

Task 9: Construction

Construction is anticipated to begin in March 2012 and to be complete by the end of May 2013. Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes clearing grubbing, storm drain inlet protection, stormwater BMP installation, and electrical, communication and water connection. Potholing will also be conducted at the sites prior to construction to locate and identify any underground structures.

Project Construction

Construction of above-ground well infrastructure includes the installation of well pumps, baski valves, chemical metering pumps, a 2-inch diameter sewer pipe, a 12-inch diameter water pipe, a 16-inch (or greater) diameter stormwater pipe, and two 500-gallon hypochlorite tanks. Earthwork will include utility and electrical piping, finish grading, and foundation work. Mechanical and electrical work consists of installation of potable water pipe, building a sanitary drain, storm water connection, chemical piping and pumps, well pump, valves, HVAC (if needed), building lighting, electrical/PLC panels, electrical grounding, and instrumentation. Other miscellaneous work to be completed includes painting, site hardware, masonry and emergency eyewash, shower and fire extinguisher installation.

Performance Testing and Demobilization

Upon completion of construction, performance testing will be required as follows:

- Concrete testing will be completed on the well foundation pads.
- Pump testing will be conducted on both wells.
- Equipment acceptance testing and electrical testing will be conducted.

Operations and maintenance (O&M) manuals will be developed for reference and distribution to operators and City of Roseville staff. Lastly, demobilization will take place under this task; the site will be cleared of all equipment and restored to its original state.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

Under Task 10, the stormwater best management practices (BMPs) identified in the SWPPP will be implemented, as well as any mitigation measures recommended in the City of Roseville ASR Final EIR (to be completed). The City will comply with the City's noise regulation in which construction will begin no earlier than 7:30 a.m. and end no later than 5:00 p.m. Additionally, implementation of the approved Project Performance Monitoring Plan will be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration work items will be conducted under this task. City of Roseville staff will complete work associated with bidding/contracting, construction management services during construction and inspections during construction. Some of these specific work items include:

- Review contractor's schedule and make recommendations
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Perform field construction inspections

Budget Category (g): Other Costs

Included in this budget category is Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.

- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the City's ASR Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A 5% construction/implementation contingency will be used for this project. This contingency level is slightly lower than what might otherwise be used for a project at a similar level of design; however, the construction cost estimates for this project were taken from Phase 1 of the ASR Program, which is similar to the proposed project. The City of Roseville is confident that their estimated construction costs will be close to the actual cost for the project, and therefore feel that a smaller contingency is justified.

Project 2: Secret Ravine Fish Passage Improvement Project

Benefits of this project include:

- Increasing aquatic habitat for salmonid spawning, rearing and migration by 1,000 square feet
- Increasing the number of salmonid returning to spawn by 20%
- Ensuring passage for spawning and returning salmonid during low-flow periods
- Preventing localized flooding in the area immediately upstream of the project area during a 10-year storm event
- Increasing public site visits by 50% per year subsequent to project completion

Detailed Description

The Secret Ravine Fish Passage Improvement Project, proposed by the City of Roseville (City), in conjunction with the Dry Creek Conservancy (DCC), will improve fish passage on Secret Ravine in

western Placer County, California. Secret Ravine is a perennial stream that supports spawning, juvenile rearing and emigration of Central Valley fall run Chinook salmon (*Oncorhynchus tshawytscha*) and spawning, seasonal rearing and migration of Central Valley Evolutionarily Significant Unit (ESU) steelhead (*Oncorhynchus mykiss*). An abandoned bridge and utility crossing on Secret Ravine presents a migration obstacle to all species of salmonids. The Secret Ravine Fish Passage Improvement Project proposes to remove the abandoned bridge and modify the channel bed to improve fish passage under all expected flow conditions.

Improved fish passage will be achieved by removing the bridge, abutments, concrete apron and abandoned utility pipes from the East Channel. Once these features are removed, the portion of the East Channel upstream of the bridge crossing will be lowered by approximately one to three feet below the current bed elevation to ensure that this channel becomes the dominant flow path. A cobble riffle will be installed as grade control and to create new spawning habitat and portions of the streambanks adjacent to the bridge abutments will be graded to improve floodplain function. Large woody debris (LWD) structures will also be placed in the channel to provide habitat and induce local scour. A log sill will be constructed at the upstream end of the West Channel to control grade and ensure that the East Channel is the favored flow path; at high flows both channels will be active. A series of LWD structures will be placed along the West Channel to provide backwater habitat and high flow refugia. These structures will provide the additional benefit of protecting the right bank from erosion. The West Channel Bridge will be removed, but the concrete abutment on the right bank will remain in place to reduce the potential for bank erosion along the base of the existing concrete block retaining wall located adjacent to the channel. The 16-inch diameter steel pipe and concrete-encased pipe will remain in place to control grade in the West Channel. When complete, the East Channel is expected to accommodate passage for all species of salmonids at all flows and low flow migration barriers may remain in the West Channel.

The resulting channel shape will provide for overbank flows that will flood adjacent open space areas and relieve flooding of more constricted developed areas. The restored channel will also reduce erosion of banks and substrate as well as in the adjacent floodplain, thus decreasing sediment transportation. Removal of the bridge sill and pipelines will provide free passage for salmonids inhabiting the creek. The project includes trail improvement that will encourage users to visit the project and observe fish migration and spawning. Interpretive signage explaining the life cycle of salmon and steelhead as well as signage explaining what residents and trail users can do to help improve habitat and water quality for wild life will be installed at the far end of the trail spur. Improvements made by this project will be available for public viewing via the trail and an overlook area.

This project has been identified as a priority restoration in the *Secret Ravine Adaptive Management Plan* (Dry Creek Conservancy, December 2001) (SRAMP), and the *Dry Creek Coordinated Resource Management Plan* (Dry Creek Conservancy, December 2003). It is also identified in Bulletin 250 (Department of Water Resources, June 2005), a Fish Passage Improvement Program (FPIP) component of the CalFed Ecosystem Restoration Program. In addition, the Dry Creek Watershed is part of the area designated by NOAA as Critical Habitat for steelhead trout.

The City of Roseville is the lead agency for the project and will be responsible for the administrative portion of the project including contracting and payment of contractors and review work performed by contractors. The City Water Department crews will perform the removal of the barrier and disposal of the waste materials. The Dry Creek Conservancy will participate in the design, contracting and scoping process with the City and verify that work performed by the contractors is in compliance with restoration standards and will coordinate volunteer planting activities at the project.



Figure 5: Location of Secret Ravine Fish Passage Improvement Project

American River Basin Attachment 3 – Work Plan

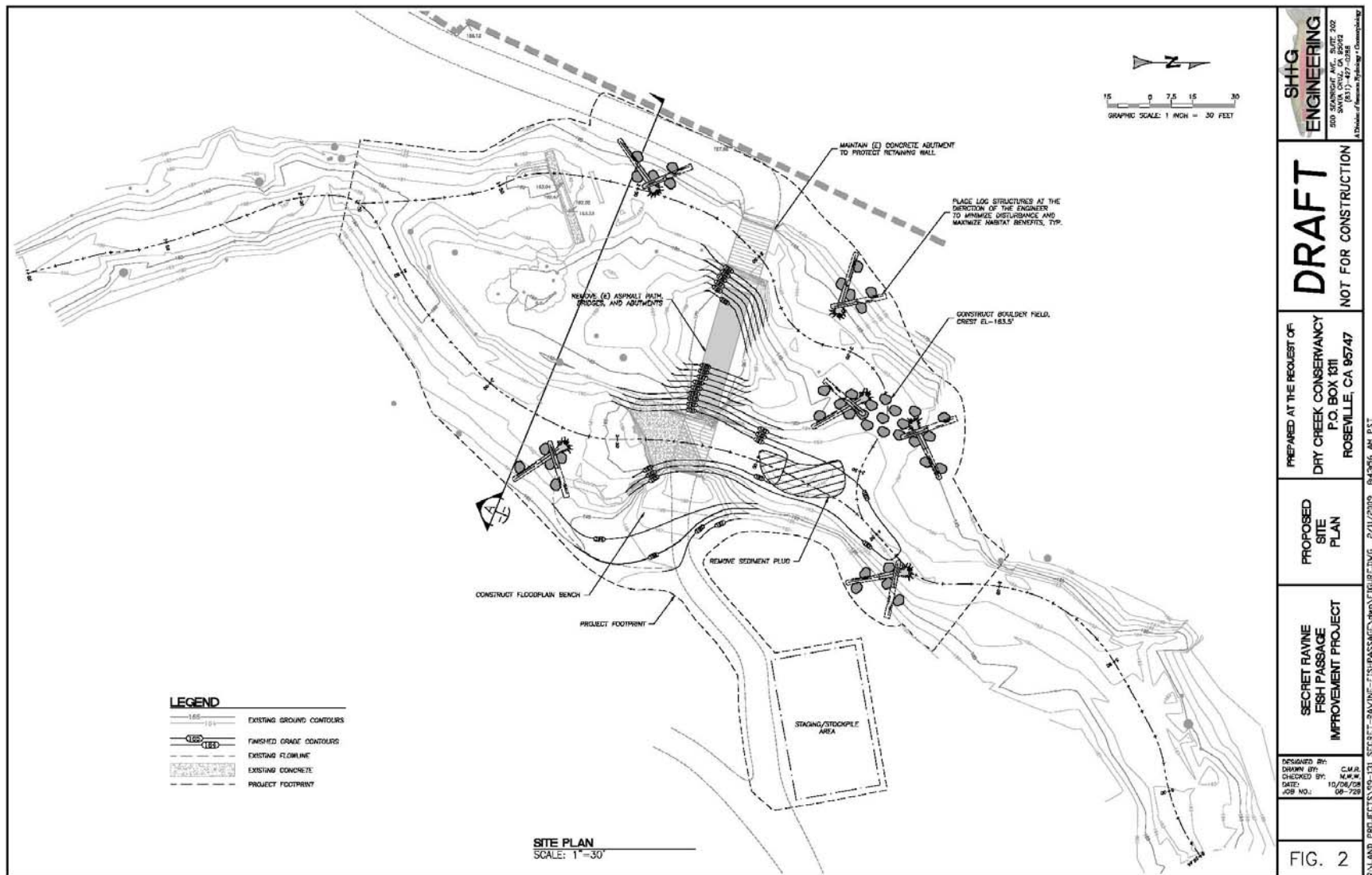


Figure 6: Secret Ravine Fish Passage Improvement Project Site Plan

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

The project has two implementing agencies: the City of Roseville and the Dry Creek Conservancy. The City and the Dry Creek Conservancy will enter into a Memorandum of Understanding delineating the number of hours and costs associated with the Dry Creek Conservancy time spent on this project, billing procedures and the payment mechanism. The City will be responsible for the administrative portion of this project including contracting and payment of contractors. The Dry Creek Conservancy will participate in the design, contracting, and scoping process with the City, all of which will require coordination. DCC will also verify that work performed by the contractors is in compliance with the restoration standards and will coordinate volunteer planting activities at the project as well.

Work to be completed as part of Task 1 also includes council communications, budget adjustments, project status meetings, and communication with RWA. To facilitate the transfer of grant funds, the City of Roseville has entered into an agreement with RWA through which any grant award reserved for the City can be directed for use in project funding.

Task 2: Labor Compliance Program

The City of Roseville does not currently have a Labor Compliance Program (LCP). The City plans to use a third-party's labor compliance program, as has been done previously. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Secret Ravine Fish Passage Improvement Project. A project completion report will also be prepared at the end of the project, anticipated to be in January 2012. The City of Roseville will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

Land for this project is already owned by the City of Roseville. It was deeded to the City through Development Agreements Fee Title. The project area is part of the City's open space.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are listed under Task 4. At this time, 90% design of the project has been completed as described in Task 5.

Task 4: Assessment and Evaluation

Many studies have been completed to demonstrate the need and viability for improving fish passage in the Secret Ravine portion of the Watershed. Feasibility of the project was verified during the course of design. The completed studies include the following:

- *Secret Ravine Adaptive Management Plan* (Dry Creek Conservancy, December 2001) defined a process to restore instream and riparian habitats to sustain native terrestrial and aquatic species of Dry Creek Watershed and to help meet the Central Valley Project Improvement Act goal to double the natural production of Chinook salmon and steelhead. The Plan identified the need to work with the DWR's Fish Passage Improvement Program for fish passage improvements in Secret Ravine (see pages 24 - 27).
- *Dry Creek Watershed Coordinated Resource Management Plan* (Dry Creek Conservancy, December 2003) identified management goals and implementation strategies to meet the objectives defined by the Dry Creek Watershed Council and identified Secret Ravine as containing some of the most suitable habitat conditions in the watershed for spawning and rearing anadromous salmonids and this restoration project to correct inadequate conditions for the upstream movement of adult salmon (see pages 161 - 162).
- *Bulletin 250: Fish Passage Improvement Report* (DWR, 2005) identified potential fish passage projects for implementation by the California Bay-Delta agencies and local interests, including the Secret Ravine Fish Passage Improvement Project (see pages 4-13 – 4-14).
- *Biological Assessment Secret Ravine Fish Passage Improvement Project* (Swanson Hydrology + Geomorphology, March 2009) reviewed the project to determine what affects the proposed project would have on Chinook salmon and steelhead.
- *Secret Ravine Fish Passage Improvement Project, Cultural Resource Assessment* (February 2009) identified that no cultural resources of any type existed on the project site.

Task 4 Deliverables:

- No further deliverables are anticipated

Task 5: Final Design

Swanson Hydrology & Geomorphology was hired by the City to design the Secret Ravine Fish Passage Improvement Project. The 90% design was completed in February 2009, with 100% (Final) Design expected to be completed by June 30, 2011. The project design meets the guidelines and standards included in the *California Salmonid Stream Habitat Restoration Manual Part XII* (Michael Love & Kozmo Bates, April 2009). The 90% design drawings have been included as attachments.

Task 5 Deliverables:

- Final Plans and Specifications

Task 6: Environmental Documentation

The following environmental documentation has been completed:

- A Notice of Exemption for Categorical Exemption under CEQA Code 15333-Small Restoration Projects was granted November 2008.
- The State Office of Historical Preservation completed a historical significance survey for the area May 2009 due to an Indian rock grinding location north of the site (not in the project footprint).
- US Fish and Wildlife Service: Section 7 Consultation was completed July 2009.
- National Marines Fisheries Service survey was completed July 2009 as part of U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit requirements.
- Placer County Flood Control District Study was completed June 2009 to satisfy the City of Roseville's Floodplain Encroachment Permit requirements.

The project is exempt from CEQA review under the provisions of Class 33 Categorical Exemptions as described in Section 15333 of the California Environmental Quality Act guidelines, which states: "Class 33 consists of projects not to exceed five acres in size to assure the maintenance, restoration, enhancement, or protection of habitat for fish, plants or wildlife provided that there are no significant adverse impacts on endangered, rare or threatened species or their habitat pursuant to section 15065...."

Task 6 Deliverables:

- None

Task 7: Permitting

The following permits have already been acquired:

- California Department of Fish and Game Section 1602 Streambed Alteration Agreement (May 2009) allowing for demolition and construction in the creek channel.
- U.S. Army Corp of Engineers Section 404 Permit (July 2009) to allow work within waters of the U.S.

- Central Valley Regional Water Quality Control Board Section 401 (May 2009) to ensure compliance with State water quality standards has been tentatively granted, contingent upon the Army Corps 404 Permit. The Army Corps 404 Permit has been approved, but has not yet been submitted to the CVRWQB.

The following additional permits will be obtained prior to implementation of the project, as follows:

- City of Roseville Grading Permit
- City of Roseville Flood Encroachment Permit

Task 7 Deliverables:

- Complete Permit package including all permits.

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Work under Task 8 will be completed after final design, beginning July 1, 2011 by City of Roseville staff. Work items include the City of Roseville's Request advertising for bids, bid opening, reviewing the bids, selecting a contractor and awarding notice to proceed. The Final Design Package completed during Task 5 will be used for the bid advertisement. Bid advertisement is expected to occur on July 1, 2011, with NTP occurring August 16, 2011.

Task 8 Deliverables:

- Public Notice to Bidders
- Notice to Proceed (NTP)

Task 9: Construction

Construction is anticipated to begin in mid-August 2011 with a completion date in mid-December 2011. Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections

Mobilization and Site Preparation

Upon the NTP, the contractor will mobilize its equipment and crew according to the staging plan. Mobilization and site preparation includes clearing a path to the work area, creating a temporary staging area, and mobilizing large construction equipment, including an excavator, two dump trucks, and a backhoe, to the site. The City of Roseville will demolish existing structures, including bridges abutments, concrete aprons and abandoned utility pipes, and excavation of concrete aprons according to the final design. Demolition debris will be disposed of per local, state and federal requirements.

Project Construction

The contractor will be responsible for installing the stormwater best management practices (BMPs), the dewatering system, and perform fish relocation. Following demolition, the contractor will restore the

stream bed and banks. The contractor will re-grade the channel bed and banks, place large woody debris and rocks in the channel, and install erosion protection. Final steps will include removing the dewatering system and fish blocknets and re-vegetating stream banks.

During construction there will be two deliverables: (1) a construction oversight approval letter signed by the design consultant and the biologist stating the work was performed to satisfaction; and (2) a fully executed contract with the Restoration Contractor.

Performance Testing and Demobilization

Under this work item, the contractor will perform site clean-up and stabilization. This includes final inspection and project certification, and contractor demobilization. A letter of approval, signed by the Design consultant and the biologist, stating that the work was performed to their satisfaction will also be prepared.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

The City applied for and was granted a Notice of Exemption under CEQA Code 15333-Small Restoration Projects. The primary environmental mitigation action required is restoration of the stream bed and re-vegetation of the stream banks.

As part of this task, stormwater BMPs will be implemented and managed. In addition, monitoring required as part of implementation of the Project Performance Monitoring Plan will also be implemented under this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction administration and management will be divided into two components; first, demolition of the existing structures will be conducted by the City of Roseville staff; and second, restoration of the stream bed and banks will be performed by a contractor. Both components will be performed under the direction of a third-party consultant.

Construction management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries

- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Field inspection will be required to inspect structure stability, channel morphology and in-stream habitat. In addition, this budget item includes insurance costs for Dry Creek Conservancy, a general liability policy premium that DCC needs to maintain in order to cover any accidents or injuries associated with volunteers performing work at the project site.

Also included in this budget category is Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Secret Ravine Fish Passage Improvement Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 10% has been included and is detailed in Attachment 4. This value was selected based on Dry Creek Conservancy's prior project experience and the design level of the project.

Project 3: E.A. Fairbairn Groundwater Well Project

Benefits of this project include:

- Increasing water supply reliability, improving emergency supply response and reducing dependence on the lower American River by producing an additional 2,250 acre-feet of groundwater in dry years, 1,462 acre-feet in normal years, and 337 acre-feet in wet years.
- Providing the opportunity to blend groundwater with surface water by locating the well at the Water Treatment Plant site

Detailed Description

In October of 2005, the City of Sacramento prepared a *Water Distribution Master Plan* (West Yost & Associates, 2005), which identified additional customer demands due to significant growth in the area. The additional growth and demand requires the need for additional groundwater wells to meet customer demands. The purpose of the *2005 Water Distribution Master Plan*, and the *2011 Water Distribution Master Plan* currently being developed, is to carefully plan the new facilities to ensure they are constructed properly to effectively and efficiently serve the area in need and to be effectively integrated into the City's existing water system.

The City's water supplies consist of surface water from the Sacramento River, surface water from the American River, and groundwater. Surface water from the American River is treated at the E.A. Fairbairn Water Treatment Plant, the site for the proposed E.A. Fairbairn Groundwater Well Project. Presently, the reliability of surface water supplies in the Sacramento area is increasingly being called into question in light of both projected future climate under present climate change assumptions (e.g. reduction in snowpack, changes in precipitation) and the on-going debate regarding restoration of the Sacramento-San Joaquin Delta (especially as it related to flows into and through the Delta). To this end, the City of Sacramento, along with the rest of the American River Basin Region, is working towards expanding conjunctive use capabilities to both improve water supply reliability and to help protect the American and Sacramento River ecosystems. The proposed E.A. Fairbairn Groundwater Well Project consists of a 2 million gallon per day (mgd), or 1,400 gpm, groundwater well, along with ancillary facilities to support operations that will increase the City's ability to conjunctively manage its water supplies and will aid the American River Basin Region in implementing the Water Forum Agreement.

The proposed new groundwater well will be constructed at the existing E.A Fairbairn Water Treatment Plant site and the facilities will be owned, operated, and maintained by the City of Sacramento Department of Utilities. The well will be operated 100% of the time during dry years, producing approximately 2,250 acre-feet per year (AFY). During an average year, the well will produce 1,462 AFY, operating 65% of the time and during wet years, the well will only be operated 15% of the time to produce 337 AFY.

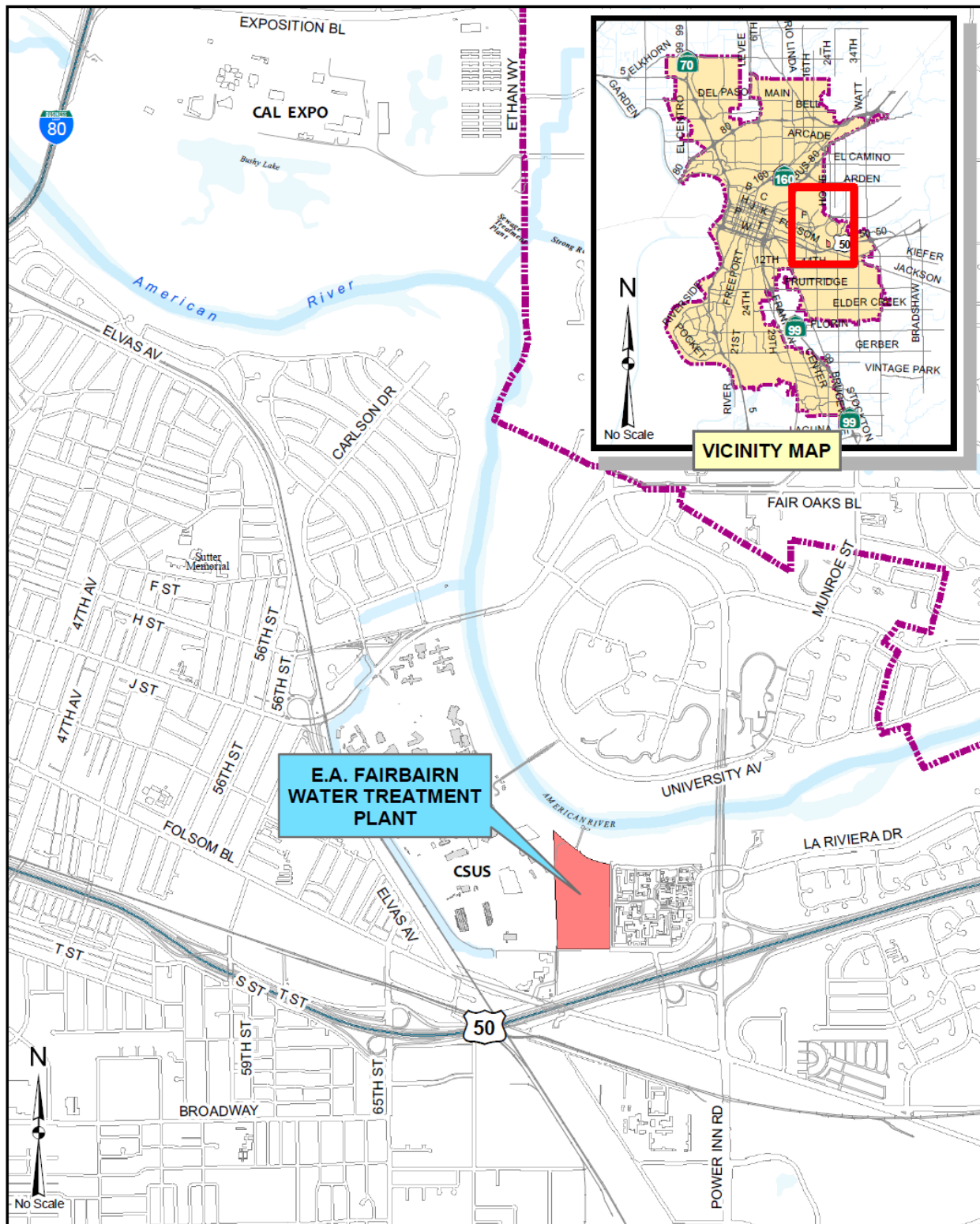


Figure 7: Location of E.A. Fairbairn Groundwater Well Project

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final reports). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes council communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, the City of Sacramento has entered into an agreement with RWA through which any grant award reserved for the City can be directed for use in project funding.

Task 2: Labor Compliance Program

The City of Sacramento has a Department of Industrial Relations (DIR) certified labor compliance program (LCP) in place. The LCP identification number is 002. Craig Lymus is the Contract Officer; his contact information is below.

City of Sacramento, Procurement Services, 915 "I" Street, 2nd Floor
Sacramento, CA 95814
Phone: 916-808-5524
Fax: 916-808-5747

The labor compliance program will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the City's E.A. Fairbairn Groundwater Well Project. A project completion report will also be prepared at the end of the project, anticipated to be in January 2014. The City will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

No land purchases, easement acquisitions or right-of-ways are required for project as the well will be constructed at the existing site of the City-owned E.A. Fairbairn Water Treatment Plant.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

No environmental or design work has been completed to date. Planning, design, environmental and permitting work items that will be completed as part of this project are described in Tasks 4 through 7.

Task 4: Assessment and Evaluation

An update to the City of Sacramento's Water Master Plan will be completed in November 2011. Based on work completed to date, this Plan recommends a conjunctive use program and provides details about the E.A. Fairbairn Groundwater Well Project. No other planning documents are required prior to design of this project. The cost to prepare the *2011 Water Distribution Master Plan* is not included in the project budget as neither grant funds or local match is being sought for that work.

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

Design has not yet started on the proposed project; however, the City does not anticipate that the well design will be significantly different than other wells constructed by the City in the past. City staff expect to complete the 30%, 60% and 100% designs in June 2011, November 2011 and April 2012, respectively.

For this project, American Water Works Association (AWWA) standards (including AWWA A-100-06, AWWA Manual No. M21) and California Water Well Standards (California Department of Water Resources, Bulletin 74-81 and Bulletin 74-90) will be followed along with any other applicable project design and material standards.

Task 5 Deliverables:

- 30% and 60% Design Packages
- Final (100%) plans and specifications

Task 6: Environmental Documentation

Beginning in July 2011, City staff will prepare a Mitigated Negative Declaration (MND) for the project in order to comply with CEQA. As part of the MND, a list of mitigation measures to be implemented during construction will be identified and a monitoring plan will be developed as part of the Mitigation, Monitoring and Reporting Program.

Task 6 Deliverables:

- Draft and Final Mitigated Negative Declaration

- Mitigation, Monitoring and Reporting Program

Task 7: Permitting

Prior to construction, the City will acquire an NPDES General Stormwater Permit and a Sacramento County Well Construction Permit. The California Department of Public Health (CDPH) will need to approve the use of the wells for public water supply; therefore, after construction is complete, the City will file a Public Water Supply Amendment. The certification from CDPH is ministerial and is not included in the budget or schedule in this project.

Task 7 Deliverables:

- NPDES General Stormwater Permit
- Sacramento County Well Construction Permit

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Construction contracting will be completed by the City and consists of the following:

1. Bid advertisement
2. Pre-bid contractors meeting
3. Bid opening
4. Bid evaluation
5. Award of Contract
6. Notice to Proceed

The bid award for the construction of the groundwater well will be announced in July 2012. The Notice to Proceed (NTP) will be released in August 2012.

Task 8 Deliverables:

- Bid advertisement
- Pre-bid contractors meeting
- Award of contract
- Notice to Proceed

Task 9: Construction

Construction for the groundwater well is anticipated to begin in August of 2012 with completion in January of 2014. Task 9, Construction, is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes an onsite meeting with the construction contractor, and equipment mobilization to the project location. The Stormwater BMPs identified in the Stormwater Pollution Protection Plan (to be prepared by the contractor) will also be installed during this stage of construction. Implementation of the stormwater BMPs is included under Budget Category (e).

Project Construction

The groundwater well will be drilled to a depth of approximately 350 feet below the ground surface (bgs). Up to a 28-inch diameter borehole will be drilled using either a reverse circulation or mud rotary drilling rig. The well will be constructed in the borehole following completion with screened intervals to be determined based on field data. During construction, the casing and screen will be centered in the borehole while an engineered filter pack is placed between the screen and the borehole wall. A cement sanitary seal will be placed above the filter pack as part of the well construction. Following construction, the well will be developed using a combination of bailing, swabbing, air-lifting, surging and pumping until the well has been deemed completed by the field hydrogeologist. The contractor will construct yard piping, as well as the ancillary facilities, including a control building.

Performance Testing and Demobilization

Following construction of the groundwater well, a test well pump and discharge piping will be installed in the new well and water quality samples will be taken and analyzed. The pump volume and drawdown will be determined at the site and a final report summarizing all of the performance testing that occurred will be drafted. All new piping and fittings will be pressure-tested to ensure proper operation. Additionally, the Department of Public Health will inspect the site to ensure it meets all required codes.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

The contractor will implement the Stormwater BMPs throughout project construction, as well as any other mitigation measure identified in the Mitigated Negative Declaration. Items that may require mitigation include excessive construction noise, dust, stormwater runoff, and tracking of debris onto public streets. Additionally, implementation of the approved Project Performance Monitoring Plan will be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

The City of Sacramento Department of Utilities Construction Management Section will provide project inspection during construction and perform all other construction management support. Construction Management includes, but is not limited to:

- Review of contractor's schedule
- Management and coordination
- Maintenance of detailed project records
- Review and distribution of submittals
- Construction inspection

Budget Category (g): Other Costs

Included in this budget category are Task 12, Project Performance Monitoring Plan and permit fees. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the E.A. Fairbairn Groundwater Well Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% has been included because the project is in a fairly preliminary stage and unknown conditions may arise. The contingency is detailed in Attachment 4.

Project 4: Shasta Park Reservoir and Well Project

Benefits of this project include:

- Increasing water supply reliability, improving emergency supply response and reducing dependence on the lower American River producing an additional 2,250 acre-feet of groundwater in dry years, 1,462 acre-feet in normal years, and 337 acre-feet in wet years
- Maintaining current groundwater elevations
- Improving the distribution system by maintaining a minimum peak hour system pressure of 30 psi and an average of 40 psi
- Directly benefiting a disadvantaged community through improved water service

Detailed Description

In October of 2005, the City of Sacramento prepared a *Water Distribution Master Plan* (West Yost & Associates, 2005), which identified additional customer demands due to significant growth in the area. The additional growth and demand requires development of additional groundwater supply capacity to meet customer demands. The purpose of the *2005 Water Distribution Master Plan*, and the *2011 Water Distribution Master Plan* currently being developed, is to ensure that new water facilities are constructed to effectively and efficiently serve the areas in need and to ensure that the new facilities are effectively integrated into the city's existing water system.

The City of Sacramento's water supplies consist of surface water from the Sacramento River, surface water from the American River, and groundwater. Presently, the reliability of surface water supplies in the Sacramento area is increasingly being called into question in light of both projected future climate under present climate change assumptions (e.g. reduction in snowpack, changes in precipitation) and the on-going debate regarding restoration of the Sacramento-San Joaquin Delta (especially as it related to flows into and through the Delta). To this end, the City of Sacramento, along with the rest of the American River Basin Region, is working towards expanding conjunctive use capabilities to both improve water supply reliability and to help protect the American and Sacramento River ecosystems. The proposed Shasta Park Reservoir and Well Project consists of a 2 million gallon per day (mgd), or 1,400 gpm, groundwater well, a 4 million gallon (MG) reservoir, a booster pump station and ancillary facilities to support operations, that will improve pressures in the City's distribution system in the Shasta Park area, increase the City's ability to conjunctively manage its water supplies and will aid the American River Basin Region in implementing the Water Forum Agreement.

The proposed Shasta Park well will be owned, operated, and maintained by the City of Sacramento Department of Utilities. During dry years, the well will be operated 100% of the time, producing approximately 2,250 acre-feet per year (AFY). During an average year, the well will be operated 65% of the time, producing 1,462 AFY, and during wet years, the well will only be operated 15% of the time, producing 337 AFY. The Shasta Park site is ideal for a new well, not only because it provides sufficient draw to reliably increase the City of Sacramento's water supply, but also because locating a new reservoir at the site will improve pressure deficiencies in the distribution system that occur during peak hours. Moreover, the new reservoir will provide additional emergency and fire suppression water supply to the surrounding area, which includes disadvantaged communities in south Sacramento. Finally, the Shasta Park site is near a library and park and informational kiosks will be installed to educate the public on the City of Sacramento's water system and the importance of managing water resources to ensure sustainability.

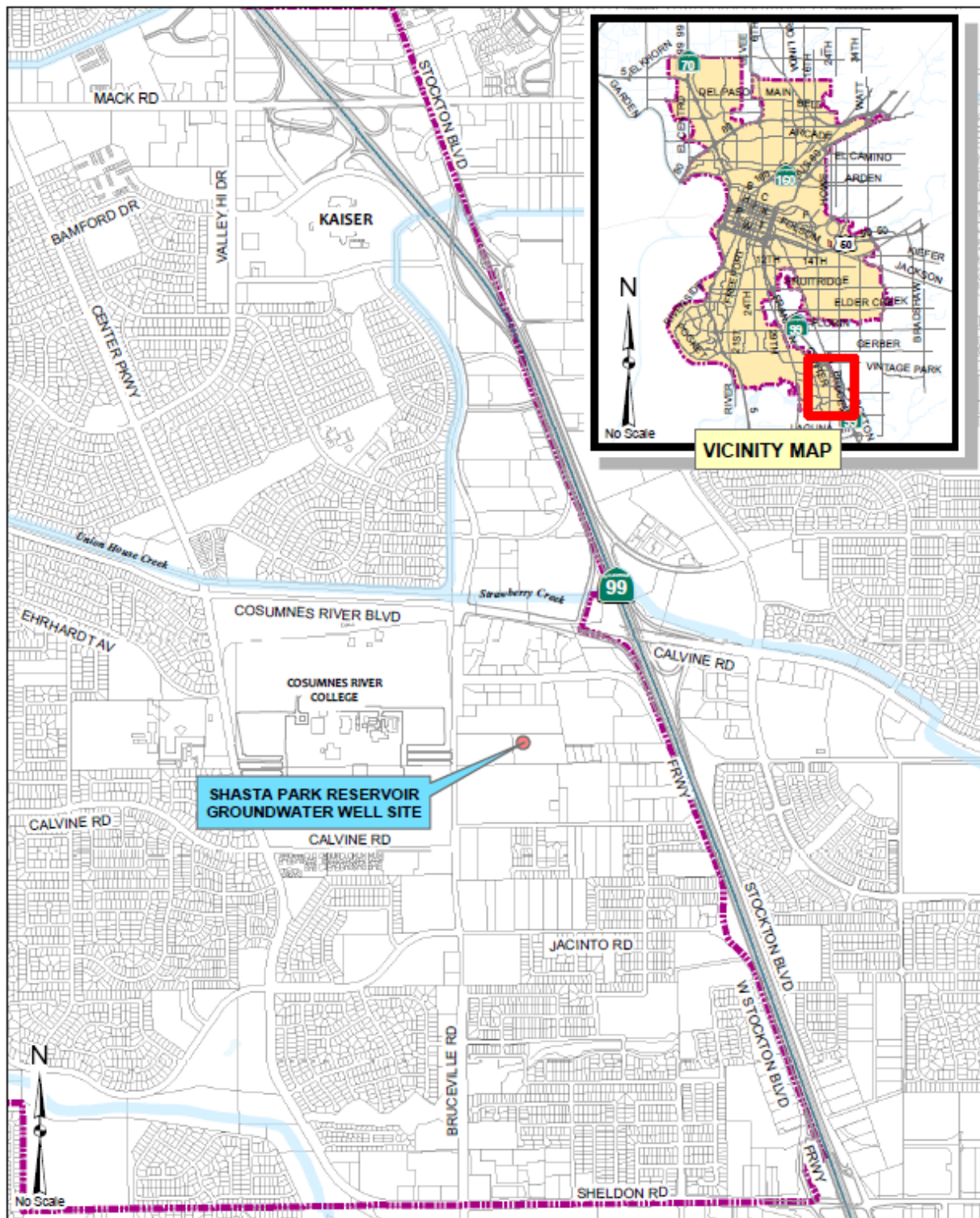


Figure 8: Location of Shasta Park Reservoir and Well Project

American River Basin Attachment 3 – Work Plan



Figure 9: Shasta Park Reservoir and Well Project Site Plan

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final reports). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes council communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, the City of Sacramento has entered into an agreement with RWA through which any grant award reserved for the city can be directed for use in project funding.

Task 2: Labor Compliance Program

The City of Sacramento has a Department of Industrial Relations (DIR) certified labor compliance program (LCP) in place. The **LCP identification number is 002**. Craig Lymus is the Contract Officer; his contact information is below.

City of Sacramento, Procurement Services, 915 "I" Street, 2nd Floor
Sacramento, CA 95814
Phone: 916-808-5524
Fax: 916-808-5747

The labor compliance program will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Shasta Park Reservoir and Well Project. A project completion report will also be prepared at the end of the project, anticipated to be in January 2014. The City of Sacramento will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The proposed location for this project is not currently owned by the City. The City's Real Estate Division is currently waiting for the completion of environmental documentation before appraising the proposed property. The City has however already begun informal discussions with Sacramento Housing and Redevelopment Agency, the owner of the parcel, regarding the sale of the property.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been or are in the processing of being prepared to demonstrate the viability of the project and are discussed below. At this time, the project is considered to be at the conceptual (10%) design stage. Project design is scheduled to be completed to be April of 2012, with construction is to follow thereafter. The project is expected to be operational by January of 2014.

Task 4: Assessment and Evaluation

The following studies have been completed for this project:

- *2005 Water Distribution System Master Plan* (October 2005)
- *Groundwater Well and Reservoir Sizing Study* (February 2006)
- *Groundwater Well and Reservoir Location Study* (November 2009)

The *Water Distribution System Master Plan* (West Yost & Associates, October 2005) identified additional customer demands due to significant growth in the area, and documented the need for additional groundwater wells to meet those demands. The Master Plan also identified the need for additional water storage in the southeast portion of Sacramento to help maintain service pressure through peak demand periods and to provide additional emergency and fire suppression water supply.

The *Groundwater Well and Reservoir Sizing Study* (West Yost & Associates, February 2006) determined that a 4 MG reservoir would meet the needs as described in the *Water Distribution System Master Plan*. The *Groundwater Well and Reservoir Location Study* (City of Sacramento, November 2009) compared different locations for the groundwater well and reservoir. The criteria for each site included hydraulics, constructability, land acquisition cost, regulatory approval, facility cost, extent of disruption to existing customers, and compatibility for the proposed uses. The preferred location for the well and reservoir was determined to be the Sacramento Housing and Redevelopment Agency property, known herein as the Shasta Park site.

The City of Sacramento's updated Water Master Plan will be completed in November 2011. Based on work completed to date, this plan recommends a conjunctive use program and provides details about the Shasta Park Reservoir and Well Project. No other planning documents are required prior to design of this project. The cost to prepare the 2011 Master Plan is not included in the project budget; neither grant funds nor local match is being sought for its preparation.

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

The conceptual (10%) design has been completed for this project. Further design has not yet started on the proposed project; however, the City of Sacramento does not anticipate that the well or reservoir design will be significantly different than similar projects constructed by the city in the past. City staff will complete the 30%, 60% and 100% designs in September 2011, February 2012 and April 2012, respectively.

For this project, American Water Works Association (AWWA) standards (including AWWA A-100-06, AWWA Manual No. M21) and California Water Well Standards (California Department of Water Resources, Bulletin 74-81 and Bulletin 74-90) will be followed along with any other applicable project design and material standards.

Task 5 Deliverables:

- 30% Design Package
- 60% Design Package
- Final (100%) Plans and Specifications

Task 6: Environmental Documentation

Beginning in July 2011, City staff will prepare a Mitigated Negative Declaration (MND) for the project in order to comply with CEQA. As part of the MND, a list of mitigation measures to be implemented during construction will be identified and a monitoring plan will be developed as part of the Mitigation, Monitoring and Reporting Program.

Task 6 Deliverables:

- Draft and Final Mitigated Negative Declaration
- Mitigation, Monitoring and Reporting Program

Task 7: Permitting

The following permits will be needed for this project and will be obtained prior to the start of construction:

- NPDES General Stormwater Permit for Construction
- Sacramento County Well Construction Permit
- Sacramento County Encroachment Permit

The NPDES General Stormwater Permit is needed per state mandate due to the disturbance of land (clearing, grading, excavating, etc.) on a parcel greater than one acre. The California Department of Public Health (CDPH) will need to approve the use of the wells and reservoir for public water supply; therefore, after construction is complete, the City will file a Public Water Supply Amendment. The certification from CDPH is ministerial and is not included in the budget or schedule in this project.

Task 7 Deliverables:

- Complete permit package including all permits as described above

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Construction contracting will be completed by the City of Sacramento and consists of the following:

- Bid advertisement
- Pre-bid contractors meeting
- Bid opening
- Bid evaluation
- Award of Contract
- Notice to Proceed

The bid award for the construction of the groundwater well will be announced in July of 2012. The Notice to Proceed (NTP) will be released in August 2012.

Task 8 Deliverables:

- Public Notice to Bidders
- Bid advertisement
- Pre-bid contractors meeting
- Award of contract
- Notice to Proceed

Task 9: Construction

Construction for the groundwater well and reservoir is anticipated to begin in August 2012 with completion in January 2014. Both the well and reservoir will be constructed simultaneously.

Task 9, Construction, is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes an onsite meeting with the construction contractor, and equipment mobilization to the project location. The Stormwater BMPs identified in the Stormwater Pollution Protection Plan (to be prepared by the contractor) will also be installed during this stage of construction.

Project Construction

The construction of the project will be broken down into five different phases as listed below:

- Phase 1 – Construct Reservoir
- Phase 2 – Drill Groundwater Well
- Phase 3 – Construct Yard Piping
- Phase 4 – Construct Ancillary Facilities (Control Building)
- Phase 5 – Construct Site Improvements (Block Wall, Paving, Paint)

The groundwater well will be drilled to a depth of approximately 350 feet below the ground surface (bgs). Up to a 28-inch diameter borehole will be drilled using either a reverse circulation or mud rotary drilling rig. The well will be constructed in the borehole following completion with screened intervals to determined based on field data. During construction, the casing and screen will be centered in the borehole while an engineered filter pack is placed between the screen and the borehole wall. A cement sanitary seal will be placed above the filter pack as part of the well construction. Following construction, the well will be developed using a combination of bailing, swabbing, air-lifting, surging and pumping until the well has been deemed completed by the field hydrogeologist. Thereafter, yard piping, as well as the ancillary facilities, including the control building will be constructed.

Performance Testing and Demobilization

To ensure the project meets all stated objectives and demands, the performance of the completed project will be tested. In this work item, the groundwater well will be pump tested to determine the actual production capacity, the booster pump station will be tested to ensure it can meet demands, the reservoir will be tested for leaks, and all pipes and fittings will be pressure tested. Following final acceptance, the contractor will demobilize.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

The contractor will implement the Stormwater BMPs throughout project construction, as well as any other mitigation measures identified in the Mitigated Negative Declaration. Items that may require mitigation may include excessive construction noise, dust, stormwater runoff, and tracking of debris onto public streets. In addition, the proposed project site is located on land occupied by the Swainson's Hawk (a sensitive species) and other environmental documents suggests that mitigation for the lost habitat may be required on a 1:1 basis. Finally, implementation of the approved Project Performance Monitoring Plan will be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other tasks associated with the bidding and contracting of the construction work. Some of the specific work items to be completed as part of this task include:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

The City of Sacramento Department of Utilities Construction Management Section will provide inspection and construction management support for this project.

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and

methods to be implemented and performance targets. The plan section for the Shasta Park Reservoir and Well Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% has been included because the project is in a fairly preliminary stage and there may be unknown conditions. The contingency is detailed in Attachment 4.

Project 5: Antelope Creek Water Efficiency and Flood Control Improvement Project

Benefits of this project include:

- Improving water supply by conserving up to 125 acre-feet of water per year
- Improving flood protection by reducing peak flows in downtown Roseville by 530 cfs during the 100-year storm event
- Improving water quality by reducing average total suspended solids concentrations by 5% and reducing turbidity
- Increasing the number of site visits by 10% more visitors per day
- Integrating water management, flood management, and land use planning

Detailed Description

The Antelope Creek Water Efficiency and Flood Control Improvement Project is being proposed through collaboration between the Placer County Water Agency (PCWA) and the Placer County Flood Control and Water Conservation District (District). This is a multi-objective water efficiency and regional flood control improvement project proposed within the Dry Creek Watershed area of the American River Basin. The project will meet multiple planning objectives by improving water supply and water quality, increasing flood protection, restoring local ecosystems and expanding an existing public recreation corridor.

PCWA operates and maintains a network of over 165 miles of raw water canals, ditches, flumes and pipelines generally along California Interstate 80 corridor between Roseville and Alta. Many of these canals and ditches were originally constructed during the 1850's using native soils and timbers. These canals traverse a diverse terrain of hills, valleys, and soil types, delivering raw water to individual customers for outdoor irrigation of green areas, crops and trees. Raw water is also delivered via the canal system to eight PCWA and several other private water treatment plants for a domestic water supply.

During canal maintenance, canal repairs and/or large storm events, water is released from the canals at pre-designated points into natural and manmade water ways. When flows increase in natural water ways

or canals, due to stormwater or other outside sources, there is a potential for sediment transport. At times, this is a desired occurrence, but large amounts of fine sands or silts can create undesirable conditions in a water way. Also, during storm events, large amounts of water can be collected and transported within the canal system. If this water is not released in a controlled manner at these pre-designated points, the water could “overtop” the canal, causing the canal wall to erode, and possibly create a large breach in the canal wall, potentially allowing a large amount of undesirable sediment to enter a natural water way. The canals can also overtop when large amounts of debris enters the canal, either intentionally or from inclement weather, wind or rain.

The goal of the water efficiency component of this project is (1) to eliminate or reduce the amount of sediment that may enter Antelope Creek or other natural water ways from the Antelope and Caperton canals, or from the area between the canal and natural water way, by installing energy dissipaters and/or other features to capture sediment at the canal release points and (2) to increase the height of the canal walls in those locations where there is a potential of overtopping the canal walls. Gunite, a cement and sand mixture that is “shot in place” with compressed air, will be used to create the desired feature at the canal outlets and to increase the height of the canal walls. To achieve the greatest amount of effectiveness and reduce potential sediment transport in the canal, both sides and the floor of the canal will be “gunited” in the identified reaches of the Antelope and Caperton Canals.

Currently, PCWA has performed a preliminary field investigation of the Antelope canal outlets in the project area and their course to a natural water way and have located those areas where the canal walls need to be raised as part of this project. Each canal outlet is unique and will require different construction techniques to complete. Based on results of this project, PCWA will develop plans and procedures for installing the various types of canal outlet features in other areas that have the potential to add sediment to natural water ways.

The overall project includes water supply efficiency improvements along both the Antelope Canal and Caperton Canal, located within the Dry Creek Watershed. The Caperton Canal is operated near capacity, providing water to 135 raw water customers and a PCWA drinking water treatment plant at the end of the canal. The project will improve the reliability of delivery to the Sunset Water Treatment Plant which serves water customers within both the Cities of Lincoln and Roseville. The Antelope Canal operates similarly, but provides raw water to 354 customers. Water quality benefits will also be achieved as the raw water will no longer be in contact with bare earth, resulting in reduced sediment load, turbidity and exposure to other soil contaminants and organics. These benefits will also be transferred to Antelope Creek and other creeks where spill waters during high flows from the canal are directed.

The second component of this multi-objective effort includes a regional flood control project on Antelope Creek just downstream of the Highway 65 crossing, also located within the Dry Creek Watershed. Through the design and construction of several on-channel weirs along an existing open space-protected reach of the creek, the project will provide flood control and flood damage reduction benefits to repeatedly damaged areas of downtown Roseville and unincorporated areas of Placer County. The project would reduce peak flood flows over a wide range of flood events, enhance existing riparian corridor ecosystems and improve water quality through groundwater recharge and natural treatment of temporarily-stored flood waters within the floodplain. Both ecosystem restoration and public recreational opportunities will be enhanced wherever possible within the floodplain of Antelope Creek, which

currently includes a multi-purpose public trail system. In-stream improvements will include bank re-contouring to ensure overbank flows, specific habitat enhancements for fisheries, removal of invasive plant species and replanting with native species. An interpretive trail sign system is also proposed to help educate the public on the project as they utilize the existing multi-purpose trail system. Two automated ALERT-type stream level and precipitation gauges will be installed upstream and downstream of the project site to help monitoring the project's effectiveness over the long-term.

The current status for both project components (flood control and water efficiency) is that engineering feasibility study documents have been completed and both are ready to move directly into the permitting and design phases. PCWA routinely completes similar concrete gunite lining projects within their system of canals. For instance, in 2010 over 14,000 lineal feet (over 2.66 miles) of such lining was completed. PCWA therefore has extensive experience with the design and construction of this component of the project. Both the Antelope and Caperton Canal lining components were identified within the *Canal and Reservoir Feasibility Study Report* and PCWA's *East Loomis Basin Canal Efficiency Study*.

The reconstruction of all of the spills on the Antelope Canal will conserve up to 50 acre-feet of water per year. Gunite lining on the Caperton and Antelope canals is estimated to conserve up to 75 acre-feet per year that would otherwise percolate through the canal walls. This project, in its entirety, is estimated to conserve up to 125 acre-feet of water per year.

This project is proposed in two phases. The first phase consists of the design and construction of concrete gunite lining and erosion control measures along PCWA's Antelope Canal, combined with the design and construction of the first (in a series of two) on-channel flood control weirs along Antelope Creek in the vicinity of Atlantic Street in Roseville. The second phase includes the gunite lining and installation of erosion control measures along PCWA's Caperton Canal, combined with the design and construction of the second upstream flood control weir on Antelope Creek in the vicinity of the Roseville Parkway crossing. Only the first phase, the work on Antelope Creek and Antelope Canal, is proposed to be funded by the Proposition 84 Implementation Grant Program.

The 2010 update to the *Dry Creek Watershed Flood Control Study* is about to be completed by the District and has identified the Antelope Creek flood control project as the number one ranked regional project for implementation. The flood reduction benefits from this project far outweighed the benefits of other projects within the study, producing as much as 1,000 cubic feet per second (cfs) of peak flow reduction at critical locations within downtown Roseville during a 100-year event (following implementation of both project phases; 530 cfs reduction following completion of the Phase 1 project). Significant flood damage reduction benefits will be realized to residential and commercial properties located downstream of the project site through downtown Roseville and a portion of unincorporated Placer County. These flood damage reduction benefits have been identified in an analysis performed using HEC-FDA tools as developed by the United States Army Corps of Engineers (USACE).



Figure 10: Location of Antelope Creek Water Efficiency and Flood Control Improvement Project

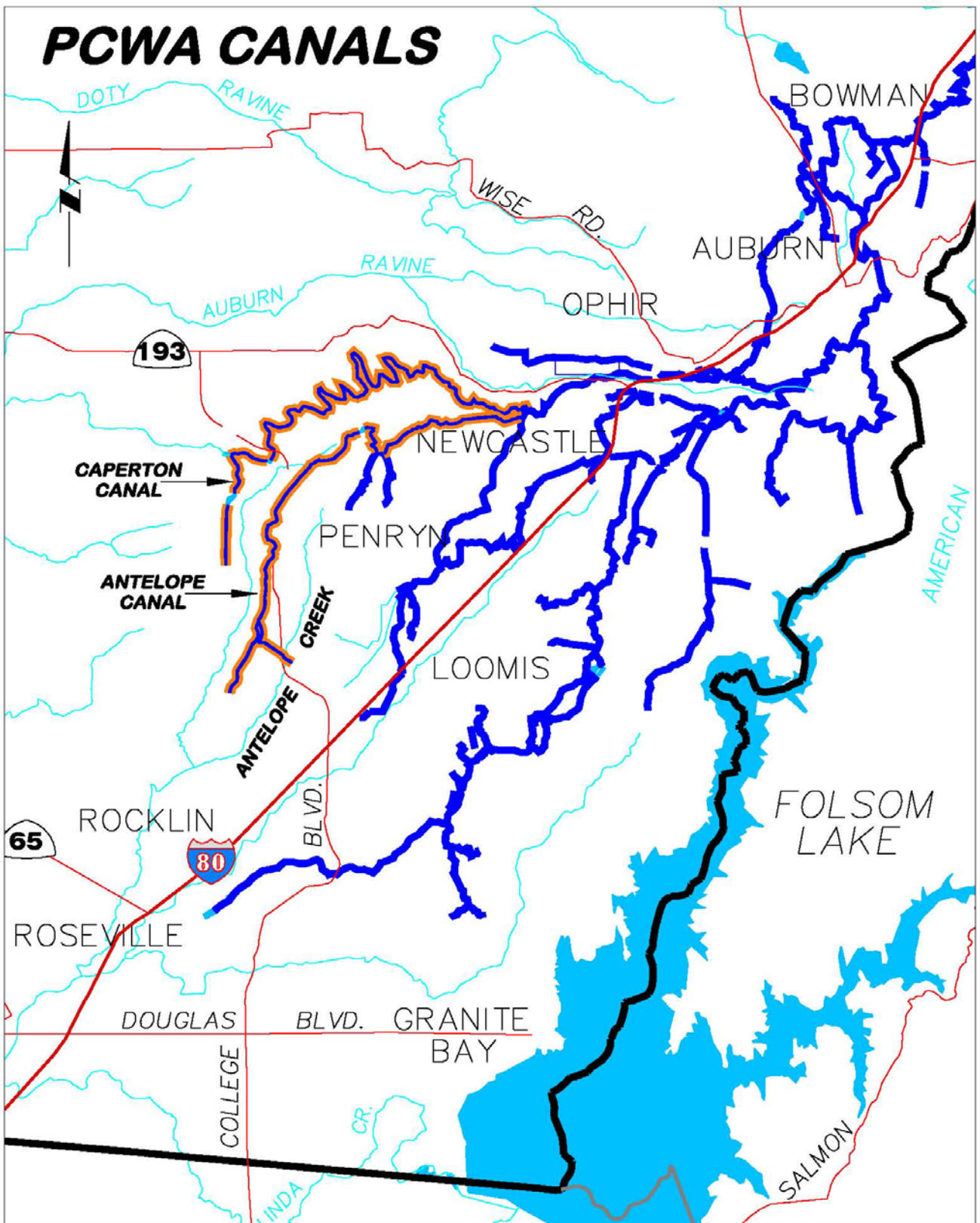


Figure 11: Location of Placer County Water Agency Canals

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes Board communications, budget adjustments, project status meetings, and communication with RWA and contractors and communication between the two participating agencies, Placer County Water Agency (PCWA) and Placer County Flood Control and Water Conservation District (District). For this project, the District will be the primary project sponsor. To facilitate the transfer of grant funds, the District and PCWA have entered into an agreement with RWA through which any grant award reserved for the Antelope Creek Water Efficiency and Flood Control Improvement Project can be directed for use in project funding.

Task 2: Labor Compliance Program

PCWA and the District have a certified labor compliance program that will be used for this project. Both agencies have extensive experience administering these programs. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of Antelope Creek Water Efficiency and Flood Control Improvement Project. A project completion report will also be prepared at the end of the project, anticipated to be in November 2014. The PCWA and the District will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The City of Roseville owns and maintains the current open space zoned property over which the flood control portion of the project is proposed. The City is a member agency of the Placer County Flood Control and Water Conservation District. It is anticipated that a permanent, no cost, flood control and conservation easement will be issued to the District from the City.

The canal lining portions of the project area will be submitted to the PCWA Property Specialist to determine existing PCWA easements and if other easements will need to be obtained. The course that the water released from the canal takes may flow through private property. Generally, there are not any issues with this water flow as the course is generally through an ephemeral stream, but construction of a facility may require permission and easements from private property owners. The costs associated with easements from property owners is not known at this time and will not be included as a request for funding under this grant. If they are required, they will be funded by in-kind services.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are listed below. At this time, the project has completed the conceptual (10%) design stage. Final design will be completed by April 2012, followed by construction with the first phase to be completed by October 2014.

Task 4: Assessment and Evaluation

The following studies have been completed:

- *Canal and Reservoir Feasibility Study Report* (Davids Engineering, May 2005) examined three studies, including a canal lining feasibility study, aimed at improving the operational efficiency of the water distribution system. The canal lining feasibility investigated the cost effectiveness of previously completed lining efforts and the feasibility of implementing additional lining projects, including the currently proposed project.
- The *2010 Update to Dry Creek Watershed Flood Control Plan Draft* (Civil Engineering Solutions and RBF Consulting, November 2010) has identified the Antelope Creek Water Efficiency and Flood Control Improvement Project as the number one ranked regional project for implementation based on flood mitigation and cost. The Plan is expected to be finalized by March or April 2011.
- *Antelope Creek Water Efficiency and Flood Control Project Flood Damage Reduction Analysis* (RBF Consulting, December 2010) performed a benefit analysis of the flood control project using HEC-FDA tools as developed by the U.S. Army Corps of Engineers.

These studies have demonstrated the need and effectiveness of the proposed project. The project is expected to be feasible, based on the planning work completed and PCWA's extensive history of similar projects (including 2.66 miles of gunite lining in 2010 alone).

Task 4 Deliverables:

- None (studies previously completed).

Task 5: Final Design

The 10% Design for this project has been completed. Four design submittals are expected for this project, corresponding to the 30%, 60%, 90% and 100% (Final) Design documents. Design of the canal lining component of the project will be performed by PCWA staff. An engineering consultant firm will be hired to design the flood control component of the project. A geotechnical consultant will review weir designs at all stages and make foundation recommendations.

During design, AWWA and ASTM Construction Standards and Occupational Safety & Health Administration (OSHA) regulations and industry standard practice will be used as construction standards and health and safety standards. City of Roseville standards for grading, encroachments and tree mitigation will be followed and permits acquired. The District's Stormwater Management Manual (SWMM) and 2010 *Updated Dry Creek Watershed Flood Control Plan* standards will be followed. In addition, the construction for all of the canal outlets will follow the CalTrans *Construction Site Best Management Practices Manual* (March 2003) for Outlet Protection/Velocity Dissipation Devices (SS-10 and SS-11) and the PCWA *Natural Resource Management Training Manual* Best Management Practice (BMP) 1b. Construction to raise the sides of the canal will follow established PCWA methods for guniting canals.

Task 5 Deliverables:

- 30% (concept) Design
- 60% Design
- 90% (pre-final) Design
- Final Plans and Specifications

Task 6: Environmental Documentation

The drafting of a Mitigated Negative Declaration (MND) is expected to begin January 2012, with completion of the Draft document by April 2012. The Final document is expected to be completed in July of 2012. No additional environmental documentation is anticipated. Anticipated mitigation measures anticipated to be incorporated in the MND include mitigation for loss of trees in the floodplain due to construction of the weirs, temporary habitat impacts that will be mitigated through creek restoration components, and implementation of construction-related best management practices.

Task 6 Deliverables:

- Approved Mitigated Negative Declaration

Task 7: Permitting

The following permits will be required to implement the project and are expected to be issued by April 2013 (prior to start of construction):

- Department of Fish and Game 1600 Streambed Alteration Agreement allowing for work within the stream channel.

- U.S. Army Corps of Engineers Section 404 Encroachment Permit to allow work within waters of the U.S.
- Regional Water Quality Control Board 401 Water Certification to ensure compliance with State water quality standards
- A Central Valley Flood Protection Board Encroachment Permit to ensure the proposed project does not impact flood control efforts.
- City of Roseville Grading and Encroachment Permit to allow grading and encroachment on City of Roseville Open Space areas.
- City of Roseville Tree Mitigation Permit to allow for the removal of trees within the City of Roseville city limits.

In addition to the above mention permits, the contractor will file and comply with a Stormwater Pollution Prevention Plan which will be submitted to the City of Roseville and Placer County.

Task 7 Deliverables:

- Complete permit package including all permits.

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

All work under Task 8 is expected to begin in April 2013. Two construction contracts will be bid and executed for this project; one contract will cover the concrete gunite lining of the canal, and the second will cover the Antelope Creek flood control work, namely construction of the on-channel flood control weir. Work items include Bid Advertisements, Notices of Award (NOA)/Notices to Proceed (NTP), and monthly progress reports. The NOAs and NTPS are expected to be released in May 2013. The Final Design Package completed during Task 5 will be used for the bid advertisements.

Task 8 Deliverables:

- Notices of Award
- Notices to Proceed
- Monthly Progress Reports

Task 9: Construction

Construction of the Antelope Creek Water Efficiency and Flood Control Improvement Project will be conducted over two construction seasons; the first from May 2013 to October 2013, and the second from May 2014 to October 2014. Construction is broken up into two different sessions due to the increase in flows during the winter months.

Mobilization and Site Preparation

Upon receipt of the NTP, the contractor and PCWA crews will begin mobilization and site preparation activities. These activities will include selective clearing and grubbing of debris and invasive species

within the floodplain construction areas; instituting tree protection measures; and following all prescribed SWPPP measures.

Project Construction

Following completion of site preparation activities, the contractor and PCWA crews will perform project construction activities. This includes general site grading, excavating and hauling for weir construction, floodplain restoration, forming and pouring the concrete flood control weir, installation of the ALERT stream level gauges, re-landscaping, installing a temporary irrigation system, and installing interpretive signs.

For canal outlets, PCWA staff will shape the area with hand tools and off-road construction equipment, install rip-rap or other material to dissipate the energy of the flowing water, install filter fabric and other devices as needed to prevent erosion, and install reinforcing wire where needed. The outside contractor will “shoot” the gunite, following direction from PCWA staff.

For raising canal walls, PCWA staff will shape the canal with hand tools and off-road construction equipment, increase the height of the canal wall with either material excavated from the canal or with temporary walls made from boards, and install reinforcing wire to the bottom and sides of the canal.

Performance Testing and Demobilization

During completion of construction activities, the contractor will perform required materials testing and monitoring. This includes geotechnical testing of flood control weir base materials, earthwork compaction testing, concrete materials testing and plant establishment and monitoring. Following construction site cleanup activities, the District will begin the three-year plant establishment monitoring period and begin monitoring the stream level gauges to determine storage and peak flow reduction results. Following canal lining, when the gunite has cured and hardened, each canal outlet will be opened and allowed to flow at a flow rate that would be typical of a stormwater flow. The effectiveness of the energy dissipater will be evaluated for its ability to reduce the velocity of the water and reduce the amount of sediment transported. Turbidity samples will be taken at the canal outlet and at the point where the flow enters a natural or manmade water way utilizing a portable Turbidity meter.

Final inspection and project certification will also be performed, along with contractor demobilization.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

Mitigation measures for this project include measures to reduce impacts resulting from the loss of tress and creek restoration components due the temporary impacts on habitat during construction.

Environmental enhancement actions include removal of invasive plants from the Antelope Creek riparian corridor and replacement with naturally-occurring trees and shrubs, planting native trees to mitigate loss of any trees within the floodplain or canal outfall areas, creek bank re-contouring to improve floodplain storage and connectivity, addition of fish habitat improvements within the stream channel, and public education through the installation of interpretive signage. All PCWA personnel and contractors associated

with this project will observe and comply with the PCWA *Natural Resources Management Training Manual* BMPs. Additionally, a project-specific Project Performance Monitoring Plan will be prepared for this project to direct longer-term project monitoring to ensure successfully project implementation and operation.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other administrative activities relating to project implementation. General contract administration and field inspections will be performed by PCWA and District staff. A 3rd party construction management firm will be utilized for the flood control portion of the project.

Construction management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries, serve as focal point
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Antelope Creek Water Efficiency and Flood Control Improvement Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 15% will be used for this project, which is based on previous projects and the state of the current project.

Project 6: Regional Water Meter Retrofit Acceleration Project

Benefits of this project include:

- Reducing water consumption by an estimated 126 acre-feet per year
- Improving water management through increased data collection and dissemination to 840 residential customers
- Implementing California Urban Water Conservation Council Best Management Practices

Detailed Description

The Regional Water Meter Retrofit Acceleration Project will install 840 additional residential meters in the service areas of three of the largest local public water suppliers in the region: the City of Sacramento, Sacramento Suburban Water District, and Sacramento County Water Agency. In complying with California Urban Water Conservation Council (CUWCC) Best Management Practices (BMP) and California law, the greater Sacramento Region has made tremendous progress toward metering its water service connections (just over 30% metered in 2001 compared to over 50% metered by the end of 2007). However, there are in excess of 100,000 meters to install in the region by the year 2025, so there are significant opportunities to accelerate the installation of meters to realize water savings well in advance of the 2025 state mandate. The participating agencies have a combined estimated number of installations of about 15,000 in the final year of their programs. This accelerated meter installation program will install about 6% of that amount on a significantly accelerated schedule.

This project will demonstrably improve water management through direct measurement of consumption using meters. In 2004, the CUWCC published the BMP Cost and Savings Study confirming that meters

combined with commodity based water rates (or volumetric pricing on amount used by the customer) are effective in driving consumer behavior to improved water management by reducing their water consumption. The CUWCC estimated 20% water savings associated with installing meters, which is the basis for the savings calculation in this application.

While an assumed savings of 20% is reasonable for conservation, using meters as part of system operations has the added benefit of improving water management within the metered area. This is because the additional meters provide better data and real-time feedback to operators, and allowing measures beyond regular volumetric pricing to be instituted to manage extreme dry conditions. For example, agencies can adopt aggressive tiered pricing structures to encourage further savings and track conservation progress using meter readings during voluntary or mandatory cutback periods.

Savings achieved by the Regional Water Meter Retrofit Acceleration Project are based on the following assumptions and background calculations:

- Average demand for Sacramento County is 261 gallons per capita per day (GPCD) according to the recently published USGS Water Use Report (2008).
- The average number of persons per household according to the California Department of Finance is 2.5 for Sacramento County.
- Multiplying the aforementioned two parameters results in 653 gallons per day (gpd) of potable water use per connection (0.73 acre-feet [AF] per year per connection).
- Estimated water savings per meter installation is 20% according to the CUWCC's BMP Cost and Savings Study (October 2004).
- Multiplying 653 by 20%, provides a total estimated savings per connection of 131 gpd, which is 47,700 gallons (0.15 AF) of water conserved by each account on an annual basis.
- Multiplying 0.15 AF savings by total of 840 accelerated metered connections within the region provides 126 AF savings per year or more than 1,890 AF over the assumed 15-year lifespan of a meter.
- Based on local average water treatment costs, 1 kWh is saved for each 700 gallons conserved, which translates to 465 kWh per acre-foot. There is also a savings associated with wastewater treatment of 1 KWh per 700 gallons saved. However, only indoor water is sent to the wastewater treatment plant. Assuming a conservative indoor usage is 40% of total, we assume that 0.4 kWh is saved for each 700 gallons conserved. This translates to 186 kWh energy conserved per acre-foot (Obadiah Bartholomy, Water Saving Carbon Equivalent Calculator).

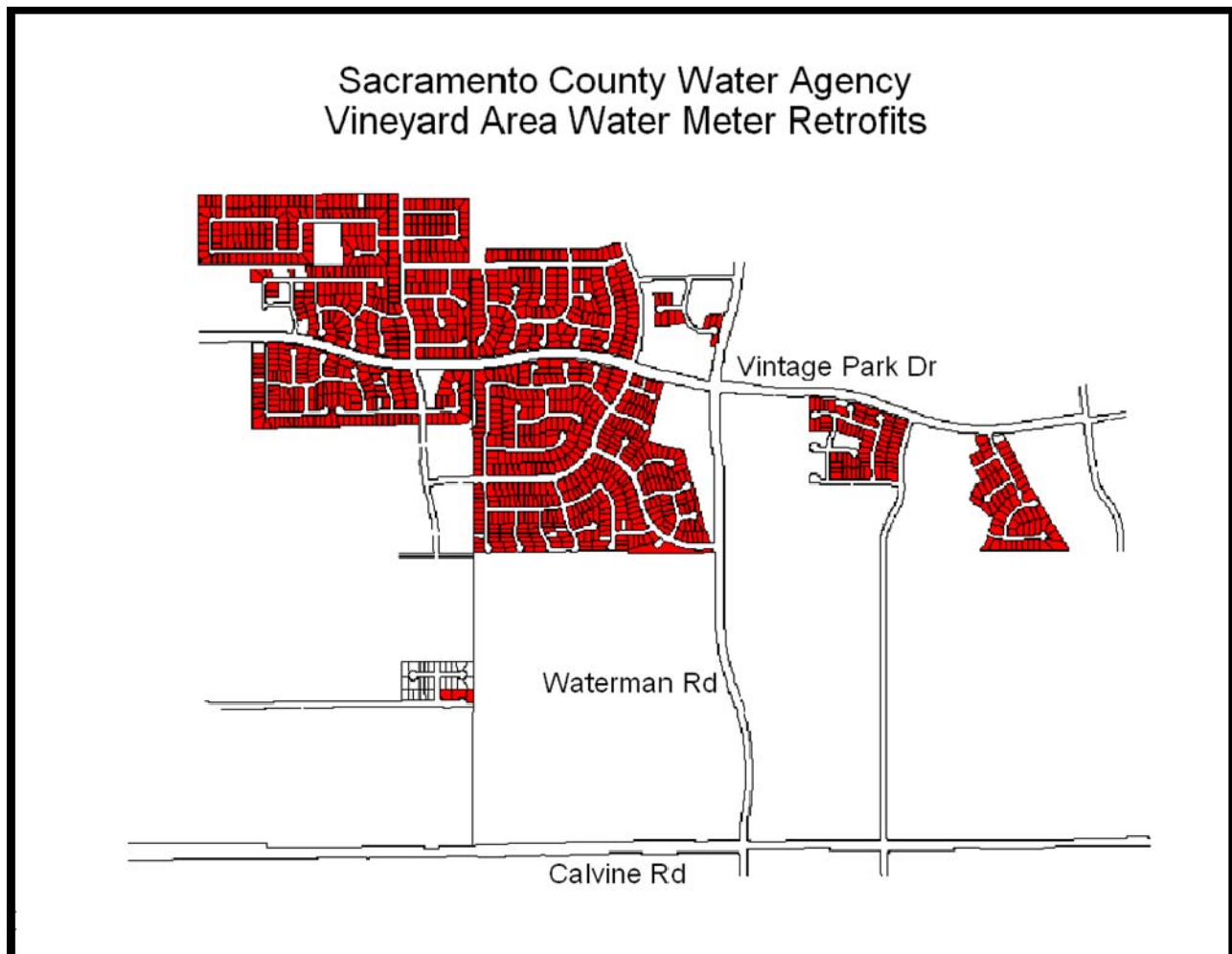


Figure 12: Sacramento County Water Agency Meter Installation Area



Figure 13: City of Sacramento Meter Installation Area

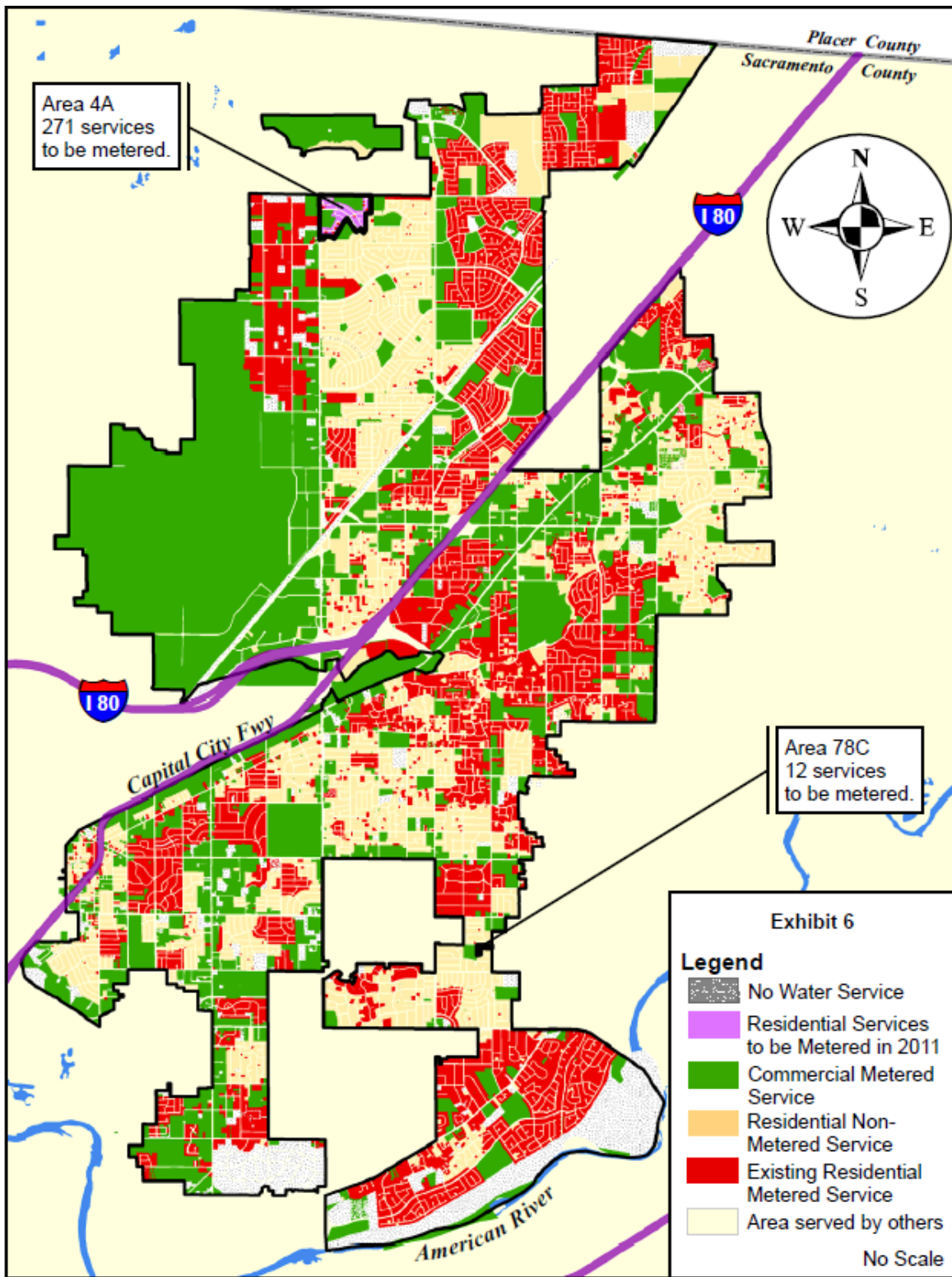


Figure 14: Sacramento Suburban Water District Meter Installation Area

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and communications with partners), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). This project is being coordinated by RWA with installations to be completed by the City of Sacramento, Sacramento Suburban Water District, and Sacramento County Water Agency. Therefore, project coordination between these entities is included in this task. In general, this budget category includes three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes Board and Council communications with the respective agencies, budget adjustments, project status meetings, and communication with RWA and contractors. This project is being administered by RWA, the Prop 84 Implementation Grant administrator; however, the meters will be installed in the City of Sacramento, Sacramento Suburban Water District, and Sacramento County Water Agency service areas.

Task 2: Labor Compliance Program

The City of Sacramento and Sacramento County Water Agency (under the County of Sacramento) currently have certified labor compliance programs that will be used for implementation of this project in their service areas. The Sacramento Suburban Water District does not currently have a labor compliance program; they will secure a certified third party contractor for this project. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports; receiving, reviewing, and processing certified payroll reports; conducting interviews; and collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Programs for each Agency
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Regional Water Meter Retrofit Acceleration Project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of July 2012. RWA will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The Regional Water Meter Retrofit Acceleration Project involves the installation of residential water meters; therefore, this project does not require the purchase or lease of land or easements. A Sacramento County Encroachment Permit will be acquired to work in County easements.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents prepared by the agencies are not necessary to implement the Regional Water Meter Retrofit Acceleration Project as the CUWCC BMP Cost and Savings Study documents the effectiveness of installing water meters. Each agency has an ongoing meter installation program, so minimal preparation of final design and specifications would be needed to commence the project. By definition provided in the proposal solicitation package, this project has completed the 10% design and the 100% design will be completed quickly because of the high level of current implementation and experience with these meter retrofits.

Task 4: Assessment and Evaluation

No assessment or evaluation studies will be performed to assess the feasibility of this project; research conducted to date by the CUWCC and the State of California verify the effectiveness of water meters in water conservation.

Task 4 Deliverables:

- None

Task 5: Final Design

The Regional Water Meter Retrofit Acceleration Project is essentially ready to proceed. The final design actions of the Regional Water Meter Retrofit Acceleration Project will begin following the June 1, 2011 funding agreement execution date. For the project, only a 100% (Final) plans and specification documents will be produced and will identify the meter locations and detail implementation specifications for contractors of the three agencies.

All installed residential water meters will comply with design and accuracy specifications of the American Water Works Association (AWWA) and shall be NSF-approved lead free. The meters will be connected to residential water services in accordance with the Uniform Plumbing Code (UPC). Meter boxes will be constructed of materials that are in accordance with ANSI/SCTE and shall be tested to meet requirements of ASTM. Additionally, Occupational Safety & Health Administration (OSHA) regulations and industry standard practices will be used as health and safety standards.

Task 5 Deliverables:

- Final Plans and Specifications for the Regional Water Meter Retrofit Acceleration Project

Task 6: Environmental Documentation

For the Regional Water Meter Retrofit Acceleration Project, a Categorical Exemption will be filed as the project will not have any significant impacts on the environment.

Task 6 Deliverables:

- Approved and adopted CEQA Categorical Exemption

Task 7: Permitting

For this project, a Sacramento County Encroachment Permit must be acquired to be allowed to work in County easements. These permits are issued on an annual basis for agency operations and maintenance. The permit for 2011 will be obtained in January of 2011. For the water meters located in the City of Sacramento, no permits will be required.

Task 7 Deliverables:

- Approved Sacramento County Encroachment Permit

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Presently, each of the Regional Water Meter Retrofit Acceleration Project participants (namely the City of Sacramento, Sacramento Suburban Water District and the Sacramento County Water Agency) selects contractors through a competitive process on a fiscal year basis for implementation of similar types of work; therefore, these agencies will modify the existing contracts to incorporate the Regional Water Meter Retrofit Acceleration Project as part of the overall contract scope.

Task 8 Deliverables:

- Annual contract awards with descriptions of contract award process

Task 9: Construction

Construction of the Regional Water Meter Retrofit Acceleration Project is expected to begin in October 2011 and end in July of 2012. Task 9, Construction, is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Under this subtask, the contractors will mobilize their equipment and crew to their respective, designated staging areas. Some of the equipment that will be required for implementation of the Regional Water Meter Retrofit Acceleration Project include: a backhoe, low bed, and crew truck; this equipment will be brought to the site during this subtask.

Project Construction

During project construction, the 840 residential water meters will be installed. The contractors will perform the installations within OSHA and any other applicable codes, regulations, and ordinances during construction.

Performance Testing and Demobilization

Representatives of the participating agencies will perform pose-construction inspections to verify proper meter installation under this subtask. Additionally, as part of this work item, demobilization and site restoration (as required) by the contractor will be completed.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

A Categorical Exemption will be filled for this project, so no mitigation measures will be required; however, contractors will prepare erosion, sediment and pollution control plans to protect water quality during construction. Contractors will also restore the residential sites to initial conditions including replacement of any disturbed turf areas, damaged shrubs or damaged trees. These measures are included as part of the construction cost. Finally, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting, or whatever period is specified by contract from the grant awarding agency.

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services. Construction management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.

- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Regional Water Meter Retrofit Acceleration Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency will not be applied to this project as the installation of water meters is not a complex construction activity. Additionally, the participants have significant prior experience in meter retrofits and will assume any additional costs.

Project 7: Regional Indoor and Outdoor Water Efficiency Project

Benefits of this project include:

- Reducing water consumption by an estimated 9,615 acre-feet over the life of the project
- Installing water-saving devices at no cost to a target of 825 disadvantaged customers in the region
- Implementing California Urban Water Conservation Council Best Management Practices

Detailed Description

Water supply agencies, the business community, and environmental interests in the greater Sacramento region have identified increasing urban and agricultural water use efficiency and conservation as primary methods of improving water management in the region. To increase the level of water conservation in the region, purveyors developed the Regional Indoor and Outdoor Water Efficiency Project, focusing on conservation practices that can be implemented to achieve consistency of implementation and an economy of scale. Implementation of the project within the Regional Water Authority's (RWA) member service areas will ultimately improve water management in the Sacramento area, allowing for better use

of water to meet environmental needs in the lower American River and ensuring a long-term water supply for urban and agricultural users. In addition, local water use efficiency and conservation will help the state meet its goal of a 20% reduction in per-capita water use by 2020.

This project will be managed by the Sacramento Regional Water Authority and will be implemented within their member service areas. Participants in the program will include Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Roseville, City of Sacramento, El Dorado Irrigation District, Orange Vale Water Company, Placer County Water Agency, Sacramento County Water Agency, Sacramento Suburban Water District, San Juan Water District, and the Cosumnes Resource Conservation District (not an RWA member).

For this project, four separate water conservation components of the project are being targeted: (1) interior water efficiency fixture retrofits, primarily targeted at disadvantaged communities (DACs); (2) exterior residential water use surveys and upgrades; (3) exterior water use surveys and upgrades for commercial, industrial and institutional (CII) and agricultural irrigation water use; and (4) the preparation of water use budgets for accounts with dedicated landscape meters. Disadvantaged customers are being targeted as part of this project because they are often unable to afford the upfront capital to participate in conservation programs. The exterior surveys, budgets and system upgrades were selected because landscape water use is the largest portion of water use in the region.

Implementation of the measures funded under this project is estimated to save 9,615 acre-feet of water over the life of the project. This project will consist of the following measures or programs:

- **Interior Conservation Retrofits** - This effort will provide a complete interior water conservation retrofit for 1,098 households in the Greater Sacramento Area, with a goal of 75% (or 825) of the retrofits targeted at disadvantaged customers. The retrofit will include a standard survey of interior water use, and direct, no-cost installation of indoor water efficiency devices including toilets, showerheads, and faucet aerators. In addition, hose-end shut-off valves will be provided for exterior hose bibs.
- **Exterior Residential Water Use Surveys and Upgrades** - For single-family accounts, provide 285 exterior water use surveys (landscape audits) and up to \$500 for each completed survey in irrigation system upgrades.
- **Exterior Large Landscape Water Use Surveys and Upgrades** - For large landscapes, including CII and residential agriculture accounts with mixed-use meters, provide 76 exterior water surveys and up to \$1,500 for each completed survey in irrigation system upgrades.
- **Landscape Water Budgets** - Prepare up to 404 landscape water budgets for dedicated landscape irrigation meters in accordance with the state's current Model Water Efficient Landscape Ordinance.

The Interior Conservation Retrofit portion of the project will provide a complete survey of interior water use, and direct, no-cost installation of indoor water efficiency devices including toilets, showerheads, and faucet aerators to disadvantaged customers. This aspect of the program will be focused on providing service to disadvantaged customers because, typically, they do not participate in water conservation

rebates and programs. Reasons for this include a greater proportion of rentals, a higher number of multi-family dwelling units, limited ability to finance their share of required repairs or improvements, and cultural barriers to participating with governmental agencies. Using pre-screened certified plumbers, the project's interior surveys will follow the approach outlined by the California Urban Water Conservation Council (CUWCC). The expected lifetime conservation of this portion of the project is 1,735 acre-feet of water.

The goal of the Exterior Residential and Large Landscape Water Use Surveys and Upgrades components is to reduce outside water use and consumption. This portion of the project will build upon and expand current programs being implemented by several area purveyors to conserve water used for urban landscaping and agricultural irrigation. Exterior surveys will be completed to meet the criteria established by the CUWCC. For agricultural water conservation, workshops will be held in at least three counties throughout the region. In addition, incentives will be offered to customers to upgrade their existing irrigation systems to improve system performance and efficiency. The expected lifetime conservation of these two portions of the project is 586 acre-feet of water.

The greater Sacramento region has over 5,600 dedicated landscape meters. The current approach to preparing water budgets is for each agency to independently perform this service. In addition, many of the existing budgets have not been prepared utilizing the criteria established in the State's current Model Water Efficient Landscape Ordinance. The Landscape Water Budget portion of this project will create landscape budgets that follow the Model Water Efficient Landscape Ordinance and are prepared in a consistent manner utilizing current data and information. In addition to preparing budgets, this project component will educate local water conservation managers on landscape water use and includes funding to provide training on outreach to customers. The water budgets prepared as part of this component will be provided to the water agencies for follow-up; agency staff will provide a service call to assist the property owner in implementing the budget. In addition, if the property owner and agency staff feels that a landscape water use survey is required, the agency will conduct a survey. The expected lifetime conservation of this portion of the project is 7,294 acre-feet of water.

The total water saving for this project will be 9,615 acre-feet. The water savings results in an energy savings of over 7,000 MWh assuming 1 AF of water savings equals 651 kWh of energy saved (*Obadiah Bartholomy, Water Saving Carbon Equivalent Calculator*).

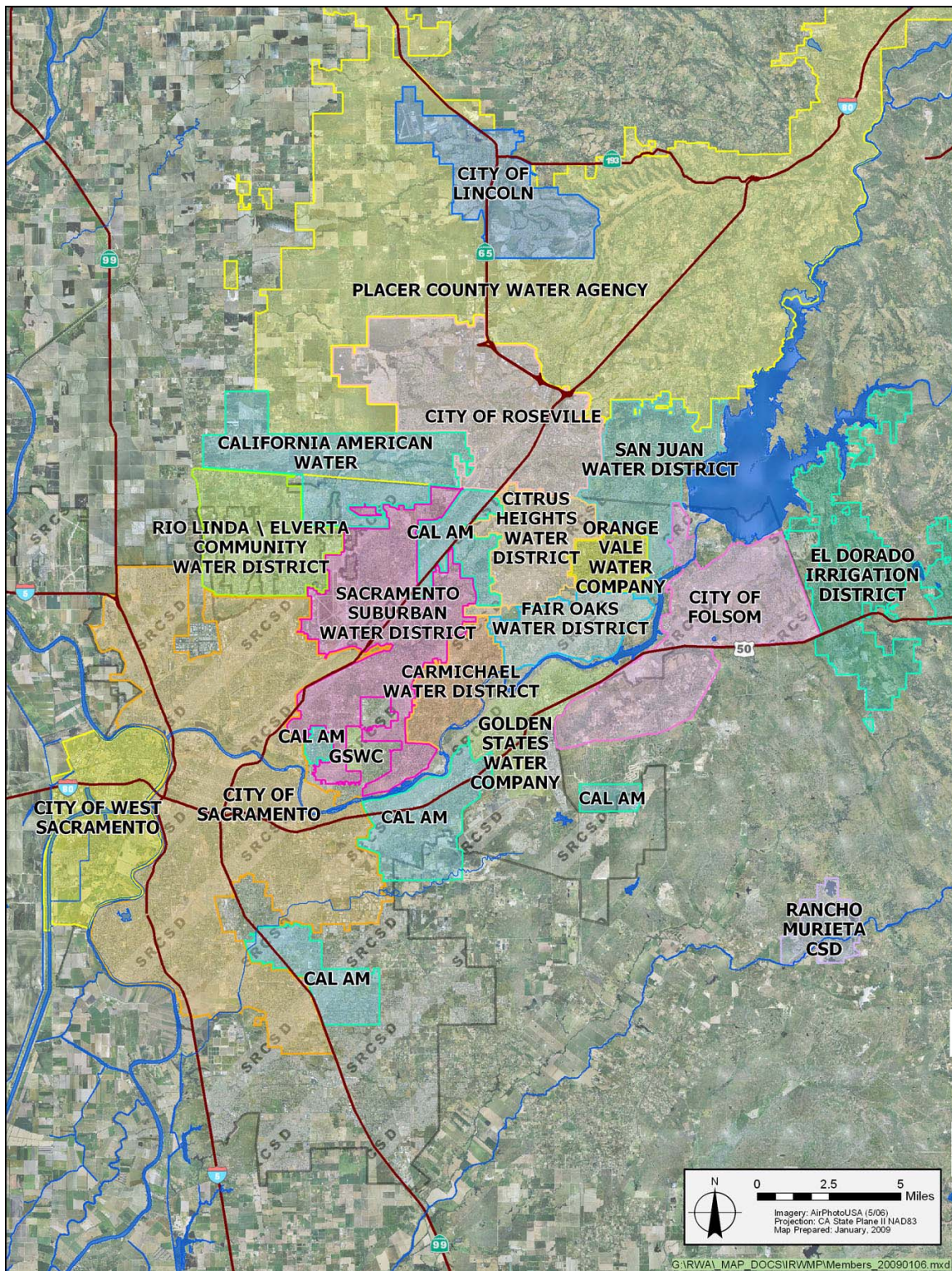


Figure 15: Map of Sacramento Regional Water Agency's Member Service Areas

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation and communications between RWA, contractors, consultants, and staff at local agencies), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and a final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes general communications, budget adjustments, project status meetings, and communication with contractors, local agency staff and internal communication at RWA.

Task 2: Labor Compliance Program

The Regional Water Authority plans to use a third-party's labor compliance program for the portion of the project involving construction contractors (the Interior Conservation Retrofit component of this project). The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Regional Indoor and Outdoor Water Efficiency Project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of September 2013. RWA will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

For this project, land purchase and easements will not be required.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

The project is designed to reduce water use as a means towards compliance with California law requiring a 20% water reduction in per capita water use Statewide by the year 2020. The majority of the planning documents required for implementation have been prepared by local agency and RWA staff. These

documents demonstrate the efficacy of the proposed conservation measures and were developed based on guidance documents prepared by DWR and the CUWCC. These documents will be used in the implementation of the project.

Task 4: Assessment and Evaluation

The California Urban Water Conservation Council published a *Memorandum of Understanding Regarding Urban Water Conservation in California* (June 2010) to guide the implementation of water conservation measures in urban areas. The CUWCC MOU describes implementation requirements for each of the best management practices (BMPs), provides a required implementation schedule, specifies the minimum level of coverage for compliance, requires documentation of BMP implementation, and states proven assumptions for estimating water conservation savings. The measures to be implemented as part of this project are documented in the CUWCC's MOU.

Task 4 Deliverables:

- None

Task 5: Final Design

To implement the BMPs identified in the MOU, RWA will draft a final design document that will identify locations for BMPs implementation, as well as provide coordination details between RWA and each of the local agencies that will receive funds under this project.

This project will follow all design and material standards documented in the CUWCC MOU as well as any other applicable standards.

Task 5 Deliverables:

- Final Design Package

Task 6: Environmental Documentation

No environmental compliance or documentation is required for this project. However, project performance monitoring will be implemented under this budget item. The Project Performance Monitoring Plan will be prepared under Budget Category (g), Other Costs.

Task 6 Deliverables:

- Project Performance Monitoring Reports

Task 7: Permitting

No permits are required for this project.

Task 7 Deliverables:

- None

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Portions of the Regional Indoor and Outdoor Water Efficiency Project will be implemented by local water agencies, while other portions will be implemented by contractors. For the portions of the project that are not to be implemented by the local agencies, the project will be sent out to bid. Work items under this task include advertising for bids, bid opening, reviewing the bids, selecting a contractor and awarding notice to proceed. The Final Design Package, completed during Task 5, will be used for the bid advertisement.

Task 8 Deliverables:

- Advertisement for bids
- Notice to Proceed

Task 9: Construction/Implementation

Implementation of this project will begin in September of 2011. The interior conservation retrofits are expected to be completed by August 2012, while the exterior single family and large landscape water use surveys and landscape water budgets are expected to be completed by September of 2013.

Mobilization and Site Preparation

Mobilization for this project involves traveling to the locations where the retrofits, surveys and budgets will be performed. No other mobilization or site preparation measures will be required.

Project Construction/Implementation

Project implementation involves completing the interior water efficiency retrofits, performing the exterior water use surveys for single family and large landscape CII and residential agricultural accounts, and performing landscape audits where dedicated landscape irrigation meters exist.

Performance Testing and Demobilization

Performance testing measures for this project will include quality assurance and quality control of the various surveys that are performed. Industry standards will be accepted for the various installed components. Analysis of meter data will be used to verify water use savings for the exterior water use surveys and the landscape water use budgets.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

No environmental compliance, mitigation, or enhancement will be required for this project; however, the implementation of project performance monitoring is included under this task. It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Budget Category (f): Construction/Implementation Administration

Task 11: Construction/Implementation Administration

Implementation administration includes will include the following items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries, serve as focal point
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Coordinate inspection of completed items with local agencies
- Recommend final payment and submit all project files for archiving

The budget for this task was estimated to be approximately 10% of overall construction/implementation costs. While this is higher than the typical 5% used for construction administration applied to construction projects, this project consists of a large number of individual surveys/projects and does not include larger material costs; as such, use of a higher construction/implementation administration percentage is justified.

Budget Category (g): Other Costs

Included in this budget category is Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for Regional Indoor and Outdoor Water Efficiency Project will be prepared under this task. A draft Monitoring Plan has been prepared for this project and is included in Attachment 9 of this grant application.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

An implementation contingency will not be applied to this project as the installation of water meters is not a complex construction activity.

Project 8: Sacramento Regional County Sanitation District / Sacramento Power Authority Recycled Water Project

Benefits of this project include:

- Replacing approximately 1,000 acre-feet per year of potable water with recycled water
- Matching water quality to water use
- Protecting surface water and groundwater supplies
- Expanding the recycled water distribution system
- Broadening the region's water supply portfolio
- Reducing discharges into surface waters

Detailed Description

Water recycling has the potential to transform wastewater effluent into a regional asset; providing a drought-proof water supply for irrigation and industrial use and freeing up high-quality potable water for other uses. Recycled water has been successfully used in California since the turn-of-the-century, beginning with the landscape irrigation of Golden Gate Park in the early 1900s. Today, non-potable use continues around the state with the irrigation of agricultural crops and landscapes, industrial uses such as cooling towers at thermal generation plants, and habitat restoration/protection. Water recycling is, and will continue to be, an important component of regional water resources planning and has been acknowledge by State as a critical piece in its water supply portfolio.

The Sacramento Regional County Sanitation District (SRCSD), in partnership with the City of Sacramento (City), initiated efforts in the late 1980's to explore the possibility of using recycled water within their service areas to meet the demands of a growing region, reduce impacts to the community from occasional droughts, and to minimize the imposition of more stringent discharge requirements. In June 2002, SRCSD and the Sacramento County Water Agency (SCWA) entered into the Recycled Water Wholesale Agreement. Through this agreement, SRCSD is responsible for producing and providing recycled water to the City, who, in turn, is responsible for distributing and retailing recycled water to select customers. SRCSD currently produces secondary and tertiary recycled water at the Sacramento Regional Wastewater Treatment Plant (SRWTP) and its Water Reclamation Facility (WRF), respectively. The WRF is located within the SRWTP property in Elk Grove, California. Currently, the vast majority (~99%) of the recycled water produced by SRCSD is secondary recycled water that is not being put to

beneficial use in the Sacramento region since it is discharged into the Sacramento River near the town of Freeport. The remaining recycled water, less than 1%, is tertiary recycled water, that is put to beneficial use at select areas in Elk Grove. The recycled water produced by SRCSD meets Title 22 requirements as specified in the California Code of Regulations.

The SRCSD has been producing tertiary recycled water since April 2003. In 2004, the SRCSD Board of Directors approved strategic concepts to evaluate the possibility of increasing the delivery of recycled water from 5 million gallons per day (MGD) to 30-40 MGD over the next 20 years. One of these concepts included the development of a Water Recycling Master Plan or a Water Recycling Opportunities Study (WROS). In February 2007, SRCSD, in coordination with land use authorities, water purveyors, and other regional stakeholders, completed its WROS. The WROS explored opportunities for increasing recycled water use by engaging stakeholders and assessing the feasibility of potential projects. Since then, SRCSD has been working with stakeholders to develop and implement the most promising recycled water projects identified in the WROS and other planning level efforts.

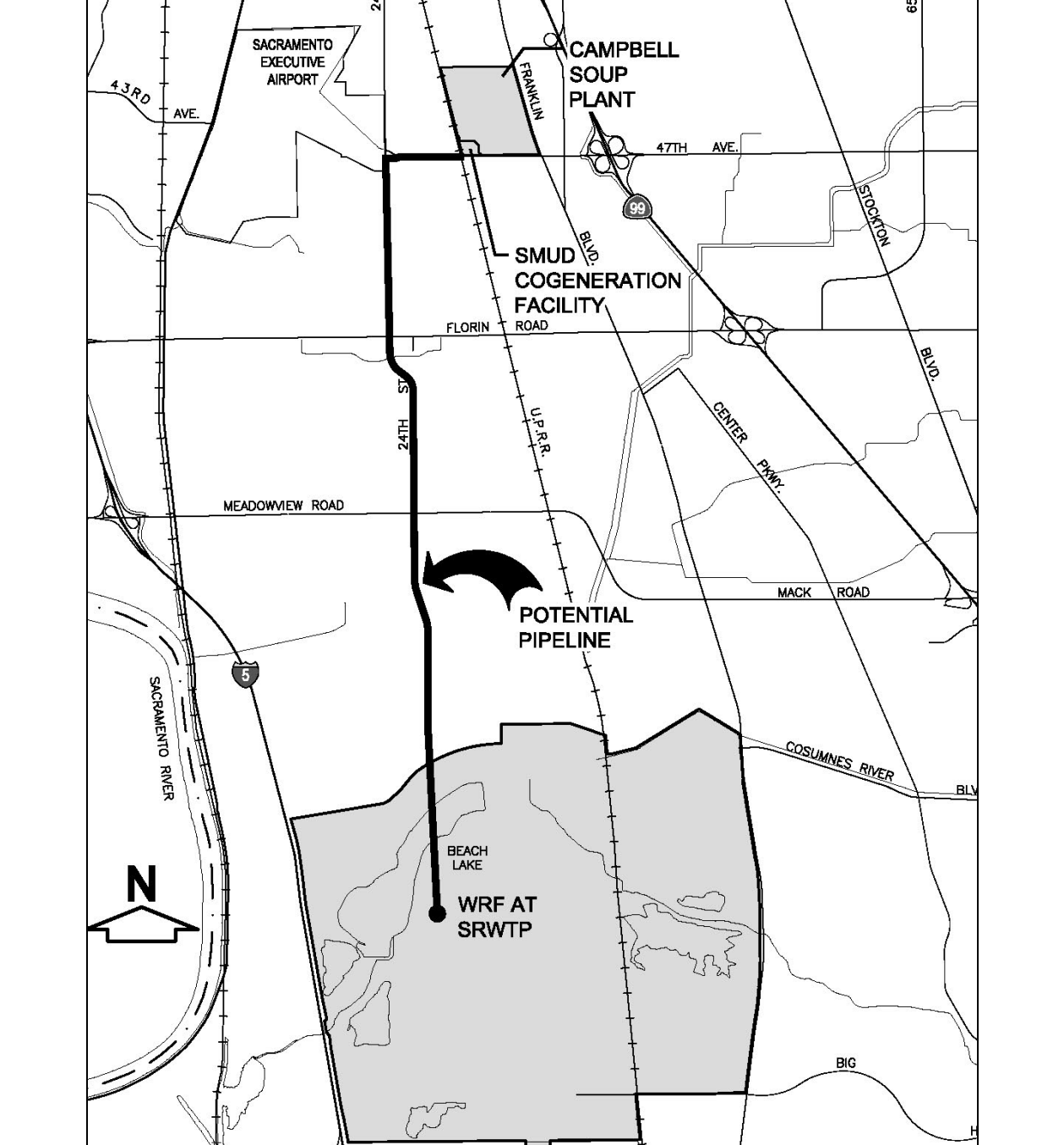
The proposed SRCSD/Sacramento Power Authority (SPA or the Authority) Recycled Water Project includes the design and construction of the necessary treatment and transmission facilities to replace potable water use with recycled water at the Campbell Soup Cogeneration Plant (Cogeneration Plant), owned by the Authority. The non-potable water needs of the Cogeneration Plant, currently met by potable surface water supplied by the City of Sacramento (City), will be replaced with recycled water to be produced by SRCSD. This will free-up surface water to meet potable water needs and augment the region's potable water supplies. SRCSD will produce the recycled water; the City and/or SRCSD/SPA will convey the recycled water via recycled water pipelines; and the Authority will use the recycled water at the Cogeneration Plant.

The Campbell Soup Cogeneration Plant is located approximately 5.5 miles north of the SRWTP, at the northwest intersection of Franklin Boulevard and 47th Avenue (see Figure 16). The City currently supplies potable surface water to the Authority to meet the water needs of the Cogeneration Plant, which has a water demand of approximately 1 million gallons per day (MGD) or 1,000 acre-feet per year. This potable water is used primarily to meet non-potable water demands in the Cogeneration Plant's cooling towers. The quality of the recycled water produced by SRCSD at its SRWTP WRF is a good fit to meet the non-potable water demands at the Cogeneration Plant. The recycled water demands for the Cogeneration Facility are year-round, not seasonal.

This project is expected to include approximately 5.5 miles of 12-inch diameter transmission pipeline, modifications to piping systems and associated appurtenances at the Authority's Cogeneration Plant to use recycled water in-lieu of potable water at its cooling towers, and piping and infrastructure modifications at the WRF treatment facilities. As described here, the project would include the production of recycled water by SRCSD and installation of the facilities necessary to bring the recycled water from the WRF to the point of connection near the Authority's Cogeneration Plant property.

Two potential routes were identified to convey the recycled water from the WRF to the Cogeneration Plant. These routes include an alignment along 24th Street and the second alignment along the Union Pacific Railroad (UPRR). An alignment along 24th Street is most likely since it appears to have enough

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Budget Category (a): Direct Project Administration Costs

Direct project administration includes, but is not limited to, general project management functions (e.g. invoice approval, schedule review), project status meetings, preparation of quarterly reports and normal communications between SRCSD and RWA. Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes internal communications, budget adjustments, project status meetings, and communication and coordination with RWA and contractors. To facilitate the transfer of grant funds, SRCSD has entered into an agreement with RWA through which any grant award reserved for SRCSD can be directed for use in project funding.

Task 2: Labor Compliance Program

SRCSD plans to use the County of Sacramento's labor compliance program. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the SRCSD/SPA Recycled Water Project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of April 2015. SRCSD will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The SRWTP property has been owned by SRCSD since the 1970s and the Authority owns the Cogeneration Plant property, but other land easement acquisitions may be required in order to implement this project. The pipeline alignment between the northern property boundary of the SRWTP and the southern terminus point of 24th Street, referred to as Delta Shores, does not appear to have existing right-of-way and it is anticipated that easements would need to be secured in this area. Also, it may be necessary to acquire easements/right-of-ways and temporary construction easements along sections of the alignment along 24th Street and 47th Avenue in order to facilitate the construction and maintenance of the

pipeline and related appurtenances. Since the existing lands within Delta Shores are undisturbed lands, installation of the recycled water transmission main is expected to be faster and cheaper compared to the other sections of pipeline. Based on prior experiences with similar projects, 5% of project construction costs is assumed for the cost of project easements.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Task 4: Assessment and Evaluation

In February 2007, SRCSD prepared the *Water Recycling Opportunities Study* (WROS), a planning document which served to (1) identify potential water recycling opportunities, (2) engage potential water recycling partners and stakeholders, (3) develop, assess, and prioritize potential water recycling projects, and (4) provide a strategy to further develop and implement the projects initially selected to move forward in achieving the stated goals of the SRCSD large-scale Water Recycling Program. The WROS employed a three-step approach to defining potential project: develop target areas, identify water recycling opportunities, and develop potential recycled water project, complete with brief project descriptions.

More recently, in October 2010, SRCSD, the City, and the Authority prepared the *Draft SMUD Cogeneration Technical Memorandum* (TM) which evaluated the feasibility of providing recycled water service in-lieu of existing potable surface water supplies to the Authority's Cogeneration Plant in south Sacramento. This TM was used as the basis to prepare the Feasibility Study, which was updated on January 5, 2011. The Feasibility Study is included as supporting documentation to this Proposal. Demand for potable and recycled water was determined, water quality parameters for recycled water were identified, planning level cost estimates were developed, preliminary route alignments were identified, and technical feasibility was discussed. The results of the evaluation indicate that replacing potable water use with recycled water is a good fit and is technically feasible.

Task 4 Deliverables:

- None – previously completed

Task 5: Final Design

The conceptual (10%) design has been completed for this project. In July 2011, SRCSD will solicit for engineering services to complete design for the SRCSD/SPA Recycled Water Project. Beginning in November 2011, the selected engineering consultant will prepare preliminary design (30%), 60% design, pre-final design (90%) and final design (100%). Final design will consist of the bid package for the SRCSD/SPA Recycled Water Project and is estimated to be completed by June 2013.

A review of construction documents was performed in order to produce a list of applicable standards. The following list illustrates the wealth of standards that are cited and must be followed as the project construction is implemented. The listing includes primarily construction standards, but also includes health and safety workplace requirements as well as classification methods.

- County of Sacramento Improvement Standards
- Country of Sacramento Construction Standards

- City and County of Sacramento road Improvement Standards
- City and County of Sacramento Traffic Control Standards
- California Department of Transportation (CalTrans) Standard Plans and Specifications
- American Society for Testing and Materials (ASTM)
- American Water Works Association (AWWA)
- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- American Public Health Association (APHA)
- American Concrete Institute (ACI)
- International Building Code (IBC)
- American Institute of Steel Construction (AISC)
- Federal Specifications
- National Electrical Manufacturers Association (NEMA)
- Steel Deck Institute (SDI)
- National Association Architectural Sheet Metal Manual (ASMM)
- National Association of Architectural Metal Manufacturers (NAAMM)
- Underwriters Laboratories (UL)
- National Electric Code (NEC)
- American Architectural Manufacturers Association (AAMA)
- Builders' Hardware Manufacturers' Association (BHMA)
- Uniform Fire Code (UFC)
- National Protection Association publications (NFPA)
- American Gear Manufacturers Association (AGMA)
- Metal Building Manufacturers Association (MBMA)
- Steel Joint Institute (SJI)
- Structural Steel Painting Council (SSPC)
- California Department of Health Services
- U.S. Dept. of Labor – Occupational Safety & Health Administration (OSHA)
- California Division of Occupational Safety and Health

Task 5 Deliverables:

- 30%, 60%, and 90% Designs

- Final Design/Bid Package

Task 6: Environmental Documentation

A Final Environmental Impact Report (EIR) for the Sacramento Regional Wastewater Treatment Plant (SRWTP) Reclaimed Water Project was completed in May 1996. This EIR was for the construction of the SRCSD Water Reclamation Facility (WRF) and two recycled water transmission lines located with the SRWTP property. The EIR covered the Phase 1 Expansion Project (5 MGD treatment capacity) and future expansion projects (up to 10 MGD of treatment capacity). Then, in September 2009, a Negative Declaration for the SRWTP Water Reclamation Facility Phase II Expansion Project was completed. The Negative Declaration updated the 1996 Final EIR for the SRWTP Reclaimed Water Project to construct the WRF Phase II Expansion Project. The Phase II project would expand the treatment capacity up to 10 MGD.

A Negative Declaration will be drafted for the pipeline proposed in this project. The expected completion date is June 2013.

Task 6 Deliverables:

- Adopted Negative Declaration

Task 7: Permitting

Four permits must be acquired prior to project implementation. One of the permits, the SRCSD Treated Wastewater Change Petition WW-28, was completed in July 1996, providing approval under Section 1211 and 1700 of the California Water Code to change the place of use and purpose of use of treated wastewater. The other three permits required have yet to be secured, but SRCSD anticipates acquiring these permits by June of 2013. These permits include:

- Potential amendments to California Energy Commission (CEC) License and Title 5 Air Permit for the Cogeneration Plant, required to operate the SPA Cogeneration Plant.
- Encroachment permits from local jurisdictions/agencies allowing for the construction of utilities in public right-of-ways.
- A Department of Fish and Game Section 1600 Streambed Alteration Agreement to cross Laguna Creek at the SRWTP property. This permit may not be required should SRCSD construct the crossing under Laguna Creek using tunneling methods to avoid mitigation impacts and accelerate the acquisition of permits. If required, an Army Corps of Engineers Section 404 Permit as well as a Regional Water Quality Control Board Section 401 Permit will also be acquired.

The permit fees are not included in the budget for this project as no grant funds are being requested to cover permit fees and the fees will not be used as a source of funding match.

Task 7 Deliverables:

- CEC License and Title 5 Air Permit Amendments
- Encroachment Permits

- Department of Fish and Game Section 1600 Streambed Alteration Agreement, Army Corps of Engineers Section 404 Permit and Regional Water Quality Control Board Section 401 Permit (if required)

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

In July 2013, SRCSD will release a Notice to Contractors for the SRCSD/SPA Recycled Water Project. After review of the bids, SRCSD will select a bid and provide the Notice to Proceed (NTP) to the selected contractor in late October 2013. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and provided by the Contractor. The Stormwater Best Management Practices (BMPs) outlined in the SWPPP will be implemented during Task 10.

Task 8 Deliverables:

- Notice to Contractors
- Notice to Proceed
- Stormwater Pollution Prevention Plan (SWPPP)

Task 9: Construction

Construction for the pipeline is anticipated to begin in November 2013 with completion in April 2015.

Task 9, Construction, is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes clearing a path to the work area, creating a temporary staging area, mobilizing large construction equipment to the site and storm drain inlet protection. Pre-construction surveys and soil borings along the pipeline will be performed and will identify existing utilities, rights-of-way, environmentally sensitive areas and above ground and underground road conditions. Mitigation measures such as the BMPs identified in the SWPPP will also be set-up under this subtask.

Project Construction

Project construction consists of the installation of the pipeline and all other appurtenances and improvements and modifications to the treatment and piping system at the water recycling facility and to the cogeneration plant piping system. This includes trench construction and stabilization, traffic control, pipe installation, backfill and compaction of the trench. The pipeline will consist of 5.5 miles of 12-inch diameter recycled water pipeline.

Performance Testing and Demobilization

After completion of construction, the pipeline and modifications to the water recycling facility and cogeneration plant will be tested. Once completed, the construction site will be cleaned and fencing

installed to protect the pipeline. The pipeline and modifications will then be inspected to ensure compliance with all applicable standards and regulations.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

Under Task 10, the SWPPP and permit compliance measures will be implemented. Construction of the pipeline segments along specific areas of the SRWTP property will avoid seasonal nesting areas. It is expected that 150 linear feet of swales and 15 inlet drop covers will be required as well as an air particulate monitor for air quality monitoring. An onsite biologist will also be present during construction to monitor the flora and fauna and identify any potential sensitive species. Additionally, monitoring required as part of implementation of the Project Performance Plan will be implemented under this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services. Construction management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

A Project Performance Monitoring Plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Sacramento Regional County Sanitation District/Sacramento Power Authority Recycled Water Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% has been included and is detailed in the associated budget. The contingency percentage is based on SRCSD's prior experience and typical industry standards for this stage of a project. More detail is provided in Attachment 4.

Project 9: North Antelope Booster Pump Station Project

Benefits of this project include:

- Increasing water supply reliability by delivering an average annual 1,600 acre-feet per year to the San Juan Water District wholesale service area for use in dry periods
- Providing emergency water supplies to a number of local water agencies by creating an intertie that connects many local agencies
- Promoting relationships among multiple water agencies
- Significantly leverages the value of existing infrastructure

Detailed Description

The North Antelope Booster Pump Station Project will construct a booster pump station with a design flow of 4,200 gallon per minute (gpm) adjacent to the existing Antelope Reservoir. This pump station

will pump groundwater produced from wells in the Sacramento Suburban Water District's (SSWD) North Service Area eastward into the Antelope and Cooperative Transmission Pipelines for conveyance to the various San Juan Water District (SJWD) retail customers. Currently, surface water from SJWD Sidney Peterson Water Treatment Plant is transmitted to Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, SSWD and SJWD through these pipelines. All of these districts, with the exception of SSWD, rely on surface water for the majority of their supply with the remaining small portion of supply coming from local groundwater wells. This project will provide for the reversal of flow in the Antelope and Cooperative Transmission Pipelines, thereby allowing SSWD to export previously banked groundwater to the other agencies connected to the pipeline. This project will expand conjunctive use opportunities in the SJWD service area, enabling the retail surface water customers to use more groundwater during dry years and in times of emergency and greatly expanding regional opportunities for conjunctive use both within and outside of the Sacramento Groundwater Authority's area of authority.

Other benefits of the expanded conjunctive use of groundwater created by this project include sustaining flows in the lower American River during dry years by providing groundwater to the surface water users thereby reducing their demand on the river. In addition, this project will provide a secondary source of supply for retail customers in the San Juan service area in the event that the capacity of the Peterson surface water treatment is limited due to conditions beyond the control of SJWD. In general, having access to an additional source of water increases water supply reliability and protects SJWD customers' limited, local groundwater resources.

The North Antelope Booster Pump Station would be constructed next to an existing SSWD pressure reducing valve (PRV) station. A 2009 Technical Memorandum prepared by Brown and Caldwell determined that the site has adequate space to accommodate the required pumps, piping and appurtenances, as well as layout space for construction.

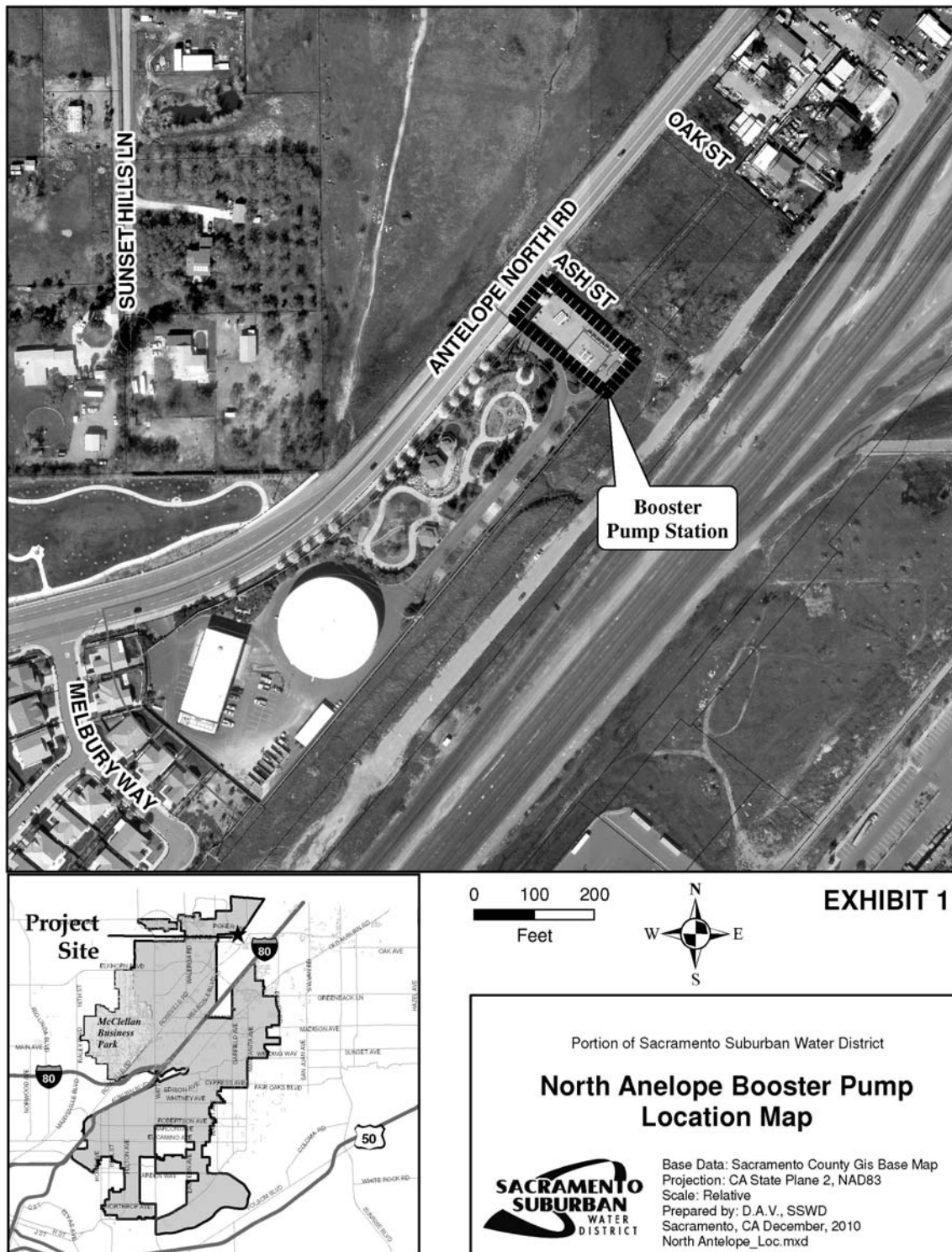


Figure 17: North Antelope Booster Pump Station Project Location

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes Board communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, Sacramento Suburban Water District has entered into an agreement with RWA through which any grant award reserved for SSWD can be directed for use in project funding.

Task 2: Labor Compliance Program

The Sacramento Suburban Water District plans to use a third-party's labor compliance program, as has been done previously. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the North Antelope Booster Pump Station project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of May 2013. SSWD will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The land for the proposed project is currently owned by SSWD, thus this project does not require the purchase or lease of land or easements.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are described below. At this time the project is considered to be at the conceptual level as the concept (10%) level design has already been completed. Additional project design is expected to occur between June of 2011

and late August of 2012, with construction to follow thereafter. The project will be operational in May 2013.

Task 4: Assessment and Evaluation

The need for this project was first documented in the *2009 Water System Master Plan* (Brown and Caldwell, July 2009). This report was prepared to provide guidance to SSWD in managing their groundwater supplies to ensure quality and quantity, and to maximize the use of the existing system capacity. The report recommended that SSWD continue to implement a conjunctive use strategy to meet District needs, and encouraged other water purveyors to reduce their groundwater use by maximizing conjunctive use (page 15-2). While SSWD has sufficient water to meet their current and projected future demands, the addition of the conjunctive use program as part of SSWD operations increases the ability of SSWD to provide water to other districts in the region that have experienced difficulty increasing their own groundwater supply due to geologic conditions (pages 7.3-7.7), thereby providing a regional benefit.

In June 2009, a Technical Memorandum was completed entitled *Folsom/Sacramento Suburban Water District Transfer Project – Preliminary Pump Station Site Evaluation* (Brown and Caldwell, June 2009). This technical memorandum made preliminary site layout recommendations for a booster pump station and compared the facility costs at two potential locations. A site location recommendation was made based on construction cost, feasibility, and impacts to pressure in the SSWD system.

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

The conceptual (10%) design for this project has been completed. The 30% design will be completed in October 2011, with the 60% design completed in May 2012 and the 90% design completed August 2012. The final design report for the booster pump station will be completed in September 2012, along with a bid package for the project.

For this project, American Water Works Association (AWWA) standards (including AWWA A-100-06, AWWA Manual No. M21) and SSWD Standard Details and Specifications will be followed along with any other applicable project design and material standards.

Task 5 Deliverables:

- 30% Design Package
- 60% Design Package
- 90% Design Package
- Final Plans and Specifications
- Bid Package

Task 6: Environmental Documentation

SSWD has not yet begun environmental documentation for this project but anticipates filing a Negative Declaration. The Negative Declaration is expected to be completed in November 2011.

Task 6 Deliverables:

- Negative Declaration

Task 7: Permitting

The following permits will be required for the completion of the project and will be obtained by October 2012, before construction begins:

- Department of Public Health Public Permit Amendment
- Public Water Supply Amendment
- County of Sacramento Electrical Permit

The Department of Public Health Permit Amendment will amend SSWD's existing permit to add the construction of a booster pump facility. The Public Water Supply Amendment will also amend SSWD's existing permit. This amendment covers SSWD water supply operations; it will allow SSWD to provide water through its facility to another agency.

Task 7 Deliverables:

- Complete permit package including all permits

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

The advertisement for bids for the booster pump station is expected to occur in September 2012, with the bid award in November 2012 and NTP issued in January 2013. The final design developed in Task 5 will be used in the bid package.

Task 8 Deliverables:

- Public Notice to Bidders
- Notice to Proceed

Task 9: Construction

Construction for the North Antelope Booster Pump Station is anticipated to begin in January 2013 with completion by May 2013. Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes an onsite meeting with the construction contractor, and equipment mobilization to the project location. Based on the final pump station layout and requirements

for maintenance access to the existing PRV station equipment, the existing access gate may need be relocated. If so, the gate will be moved during this phase of construction. On-site safety equipment will be installed at this stage. The Stormwater best management practices identified in the Stormwater Pollution Protection Plan (to be prepared by the contractor) will also be installed during this stage of construction.

Project Construction

Prior to installation of the pump station facilities, the site will be excavated in accordance with the final plans and specifications. Construction of the pump station includes construction and installation of piping and appurtenances, two magnetic flowmeters and two 50 horsepower centrifugal pumps. A motor control center with a transformer, controls and instrumentation will also be installed during this phase.

Performance Testing and Demobilization

Following construction of the pump station, start-up and control testing will be performed. Testing will include meter flow testing and calibration, motorized valve control testing and calibration, and pump flow rate testing. Finally, general site cleanup and demobilization will be performed and final project certification will be performed.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

As previously mentioned, SSWD has not begun environmental documentation; however, there are no apparent environmental issues with the construction of this project that will require mitigation. SSWD anticipates filing a Negative Declaration; therefore, no mitigation measures are anticipated. A Stormwater Pollution Prevention Plan will be prepared and implemented as part of project construction and only standard stormwater best management practices are expected to be required. Finally, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other tasks associated with the bidding and contracting of the construction work. Some of the specific work items to be completed as part of this task include:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries and contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for SSWD's North Antelope Booster Pump Station Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% will be used for the North Antelope Booster Pump Station Project. This percentage was based on prior experience with similar projects at this stage of design.

Project 10: Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project

Benefits of this project include:

- Increasing water supply reliability and improving emergency supply response by producing up to 5,750 acre-feet per year of groundwater in dry years
- Maintaining current groundwater levels
- Protecting the American River ecosystem through increased conjunctive use operations

Detailed Description

Sacramento Suburban Water District (SSWD) has developed and is currently implementing a conjunctive use program to improve their water supply reliability. As documented in the District's *2009 Water Master Plan* (Brown and Caldwell, July 2009), the development of a conjunctive use program in the SSWD service area provides regional benefits in addition to local benefits (pages 7.3-7.7). While SSWD has sufficient water to meet their current and future demands, the addition of the conjunctive use program will increase the ability of SSWD to provide water to other districts in the region that are not capable of increasing their water supply. That is, expansion of groundwater banking in the SSWD service area provides expanded conjunctive use opportunities to the American River Basin IRWM region.

The Coyle Avenue and Roseview Park Pump Station and Treatment Systems Project involves the construction of one well, pump station and treatment system at each of two sites within SSWD service territory. The proposed Coyle Avenue Pump Station and Treatment System will be located in the SSWD's North Service Area (NSA) on the northeasterly corner of the Coyle Avenue Elementary School soccer fields and the Roseview Park Pump Station and Treatment System will also be located in the NSA on property currently owned by the Sunrise Recreation and Park District. Both of these locations are north of a region-wide groundwater cone of depression and regional contamination plumes.

The overall project, as described herein, involves the installation of two groundwater wells and construction of new pump stations. The Coyle Avenue well will have a pumping capacity of 2,250 acre-feet per year (1,400 gpm), as documented in the *Coyle Avenue Exploration Summary and Well Design Recommendations Technical Memorandum* (Luhdorff and Scalmanini, January 2010) while the Roseview Park well will have a capacity of 3,500 acre-feet per year (2,200 gpm).

Two 1,200-square foot pump stations will be constructed to house each well, well pump, and associated discharge piping, motor control centers, treatment equipment, and chlorination facilities. In addition to the

pump stations, distribution pipelines, fences, and other appurtenances will be installed to make the wells fully operational. Wellhead treatment systems at each site will consist of chlorination for disinfection and possible direct-filtration treatment for manganese removal (the need for wellhead treatment for manganese will be determined following well construction).

The objective of the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project is to increase the reliability and water quality in SSWD's North Service Area and nearby districts, while also improving groundwater quantity and quality and helping to protect the American River ecosystem. These wells increase SSWD's conjunctive use capacity significantly. SSWD has already invested significantly in imported surface water supplies to achieve in-lieu recharge to the groundwater basin well in excess of 150,000 acre-feet since the mid-1990s. These wells will allow for the recovery of banked water in dry periods, ensuring surface water is left in the lower American River for environmental benefits. When operated conjunctively, they are expected to increase average annual yield by about 2,000 AFY.

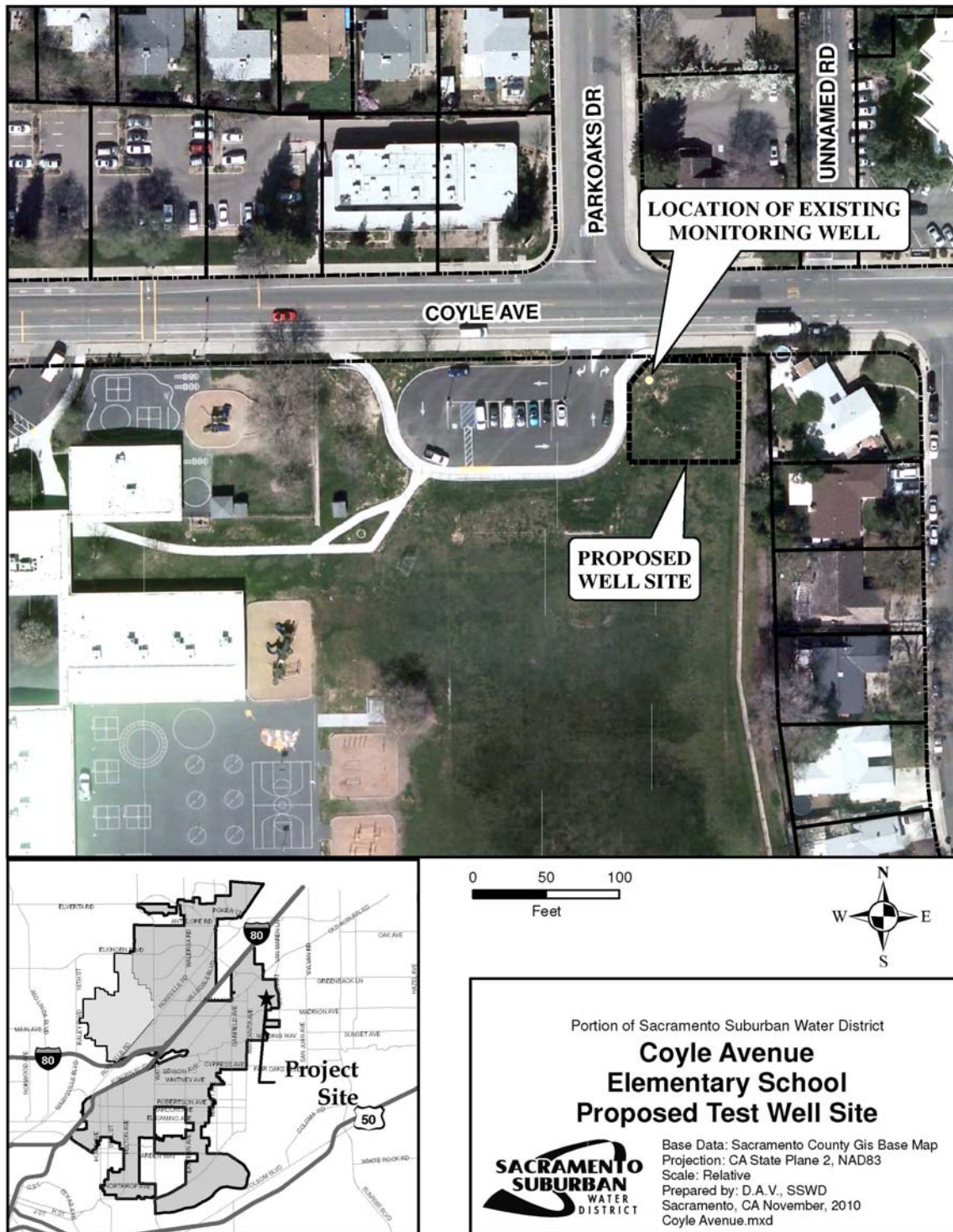


Figure 18: Coyle Avenue Pump Station and Treatment System Project Location

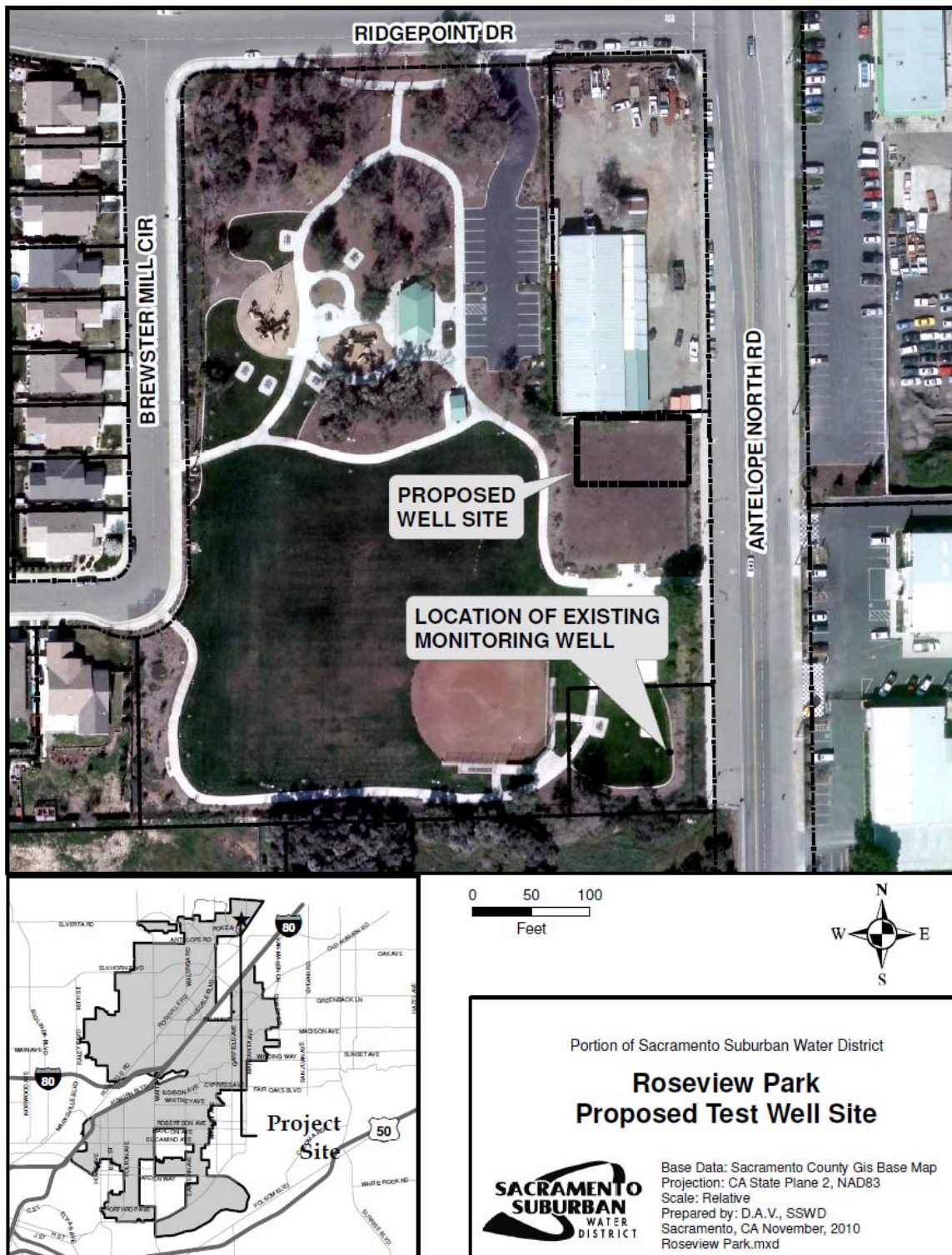


Figure 19: Roseview Park Pump Station and Treatment System Project Location

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes council communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, Sacramento Suburban Water District has entered into an agreement with RWA through which any grant award reserved for SSWD can be directed for use in project funding.

Task 2: Labor Compliance Program

The Sacramento Suburban Water District plans to use a third-party's labor compliance program, as has been done previously. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of October 2012. Sacramento Suburban Water District will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The land for the proposed project is not currently owned by the Sacramento Suburban Water District; however, SSWD has submitted an offer letter to the San Juan Unified School District (SJUSD) for the Coyle Avenue site and Sunrise Recreations and Park District (SRPD) for the Roseview Park site. SJUSD and SRPD are currently finalizing the offers from SSWD, and the finalization and transfer of the properties is expected to occur before June 1, 2011. The location of the Coyle Well will be in the northeasterly corner of the Coyle Avenue Elementary School's soccer fields and the Roseview Park Well

will be located along Antelope North Road. Estimated purchase price for both properties is \$69,400; \$36,500 for the Coyle Avenue site and \$32,900 for the Roseview Park site.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are described below. Additionally, SSWD has implemented other similar wells in their service area (e.g. the Verner Street well), further demonstrating the viability of the project.

At this time, design of each well has been completed, and the pump stations and treatment portions of the project is currently underway; all design will be completed by June of 2011, with construction to follow immediately thereafter. The Project is scheduled to be operational by September of 2012.

Task 4: Assessment and Evaluation

The need for this project was first documented in the *2009 Water System Master Plan* (Brown and Caldwell, July 2009). This report was prepared to provide guidance to SSWD in managing their groundwater supplies to ensure quality and quantity, and to maximize the use of the existing system capacity. The report recommended that SSWD continue to implement a conjunctive use strategy to meet District needs, and that they encourage other water purveyors to reduce their groundwater use by maximizing conjunctive use (page 15-2). While SSWD has sufficient water to meet their current and future demands, the addition of the conjunctive use program as part of SSWD operations increases the ability of SSWD to provide water to other districts in the region not capable of increasing their own water supply (pages 7.3-7.7), thereby providing a regional benefit.

In October of 2008, a *Water Well Site Evaluation and Acquisition Assistance Report* (Dominichelli and Associates, Inc., October 2008) was completed, providing a list of suitable parcels within SSWD's boundaries that met the criteria for new production well sites. Included on this list was the Coyle Avenue site (page 20) and the Roseview Park site (page 4). The criteria for identifying suitable parcels were:

- An available area of approximately 6,000 square feet
- A minimum pipeline tie-in of 12-inches
- Proximity to sewer and drainage facilities
- Reasonable access
- Presence of three phase power in the vicinity of the site

Subsequent to this report, SSWD drilled a test well in early 2010 to verify the lithology and geology at the Coyle Avenue site. During this investigation, geophysical surveys were performed, verifying the suitability of the site both in terms of geology and groundwater quality. As described in the January 2010 letter entitled *Sacramento Suburban Water District: Coyle Avenue Exploration Summary and Well Design Recommendations* (Luhdorff and Scalmanini Consulting Engineers, January, 2010), data gathered during the test hole exploration "...indicate that this site would be suitable for a municipal water supply well with a design capacity of 1,400 gallons per minute (gpm)."

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

The final design for the wells has already been completed and the advertisement for bid was released in December of 2010. The 10% design of the pump stations and treatment systems has been completed, and subsequent design is currently underway. The 30% design will be completed in March of 2011, with the 60% design completed in April 2011 and the 90% design completed in May 2011. The final design report for the pump stations and treatment systems will be completed by June of 2011 along with a bid package for that portion of the project.

For this project, American Water Works Association (AWWA) standards (including AWWA A-100-06, AWWA Manual No. M21) and California Water Well Standards (California Department of Water Resources, Bulletin 74-81 and Bulletin 74-90) have and will be followed along with any other applicable project design and material standards.

Task 5 Deliverables:

- Final Plans and Specifications for the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems
- Bid Package for the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems

Task 6: Environmental Documentation

A Draft Initial Study/Negative Declaration (IS/ND) has been prepared and was published for public comment in November 2010. A public meeting was held in December 2010 to receive comments, and the IS/ND is currently being finalized. The draft IS/ND analyzes potential adverse impacts from construction and operation of the Coyle Avenue and Roseview Park wells, pump stations and wellhead treatment systems. Per the Draft IS/ND, the proposed project will not cause any significant adverse environmental impacts. This is not expected to change with completion of the Final IS/ND.

Task 6 Deliverables:

- Draft Initial Study/Negative Declaration
- Approved and adopted Initial Study/Negative Declaration

Task 7: Permitting

The following permits have been obtained for the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project:

- County of Sacramento Well Construction Permit (obtained December 2010)
- Department of Public Health Permit Amendment (obtained December 2010)

The following permits for each well will be required for the completion of the project and will be obtained before construction begins:

- County of Sacramento Sewer Permit
- County of Sacramento Water Agency Permit
- NPDES Permit Amendment
- Public Water Supply Amendment

Task 7 Deliverables:

- Complete permit package including all permits as described above

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

The bid award for the construction of the wells will be announced in early January of 2011. The Notice to Proceed (NTP) will be released in March of 2011. For the pump stations and treatment systems portion for the project, the advertisement for bids is expected to be published in June of 2011 with the bid award announced in July 2011 and the NTP issued in August 2011 for the Coyle Avenue Site and late October 2011 for the Roseview Park Site.

Task 8 Deliverables:

- Public Notice to Bidders for each portion of the project
- Notice to Proceed for each portion of the project

Task 9: Construction

Construction of one well is anticipated to begin in March of 2011 with the second well shortly thereafter in May 2011. Completion of both wells is anticipated in June of 2011. Construction of the pump stations and treatment systems portion of the project is expected to begin in August 2011 for the Coyle Avenue site and in late October/early November 2011 for the Roseview Park site. All construction will be completed by June of 2012 for the Coyle Avenue site and September 2012 for the Roseview Park site.

Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Mobilization and site preparation includes an onsite meeting with the construction contractor, and equipment mobilization to the project location. The Stormwater BMPs identified in the Stormwater Pollution Protection Plan (to be prepared by the contractor) will also be installed during this stage of construction.

Project Construction

Construction of the wells includes the drilling operations, casing installation, filter pack placement, sanitary seal placement and wellhead completion. Detailed specifications and plans for the wells, found in the Wells Final Design Package, are included as an attachment to this work plan.

Pump station and treatment system construction for the Coyle Avenue Site includes construction of the 1,200 square foot masonry pump station, installation of above-ground appurtenances such as flow meters, valves and instrumentation, and installation of approximately 200 linear feet of either 12-inch or 16-inch underground piping to convey water from the well to the SSWD distribution system. Additionally, 200 linear feet of 15- to 18-inch underground storm drain will be installed, connecting the well pump-to-waste piping to the existing Sacramento County-owned storm drain system. A motor control center with pad-mounted transformer, controls, instrumentation, lighting, heating, fencing, landscaping and irrigation facilities will also be installed during this phase.

Pump station and treatment system construction for the Roseview Park Site is identical to that of the Coyle Avenue site with the following exceptions: 600 to 1,200 linear feet of 18-inch underground storm drain will be required for connecting the well pump-to-waste piping to the Sacramento County-owned storm drain system and 600 linear feet of 4-inch underground sewer line will be required to connect to the existing Sacramento County-owned sewer system.

The wellhead treatment systems at both sites, constructed in the pump stations, will consist of a chlorination treatment for disinfection and possibly a manganese removal system. More details and specifications for the wellhead treatment system will be known once the wells have been constructed and additional water quality data have been gathered.

Performance Testing and Demobilization

Following construction of the wells, test well pumps and discharge piping will be installed in the new wells. The new wells will then be developed and water quality samples will be taken and analyzed. The pump volume and drawdown will be determined at each site and one final report summarizing all of the performance testing that occurred will be drafted. Performance testing for the pump stations and treatment systems will include pressure testing and pump testing with water quality samples collected during start-up to ensure the treatment system is effective. Finally, the Department of Public Health will inspect the sites to ensure they meet all required codes.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

As previously mentioned, a Negative Declaration has been prepared for this project; therefore, no mitigation measures are anticipated. A Stormwater Pollution Prevention Plan will be prepared and implemented at both sites as part of project construction; thus only standard Stormwater best management practices will be implemented through the construction period. Finally, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other tasks associated with the bidding and contracting of the construction work. Some of the specific work items to be completed as part of this task include:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries and contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Coyle Avenue and Roseview Park Pumps Stations and Treatment Systems Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% will be used for the Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project. This percentage was based on prior experience with similar projects at this stage of design.

Project 11: Willow Hill Pipeline Rehabilitation Project

Benefits of this project include:

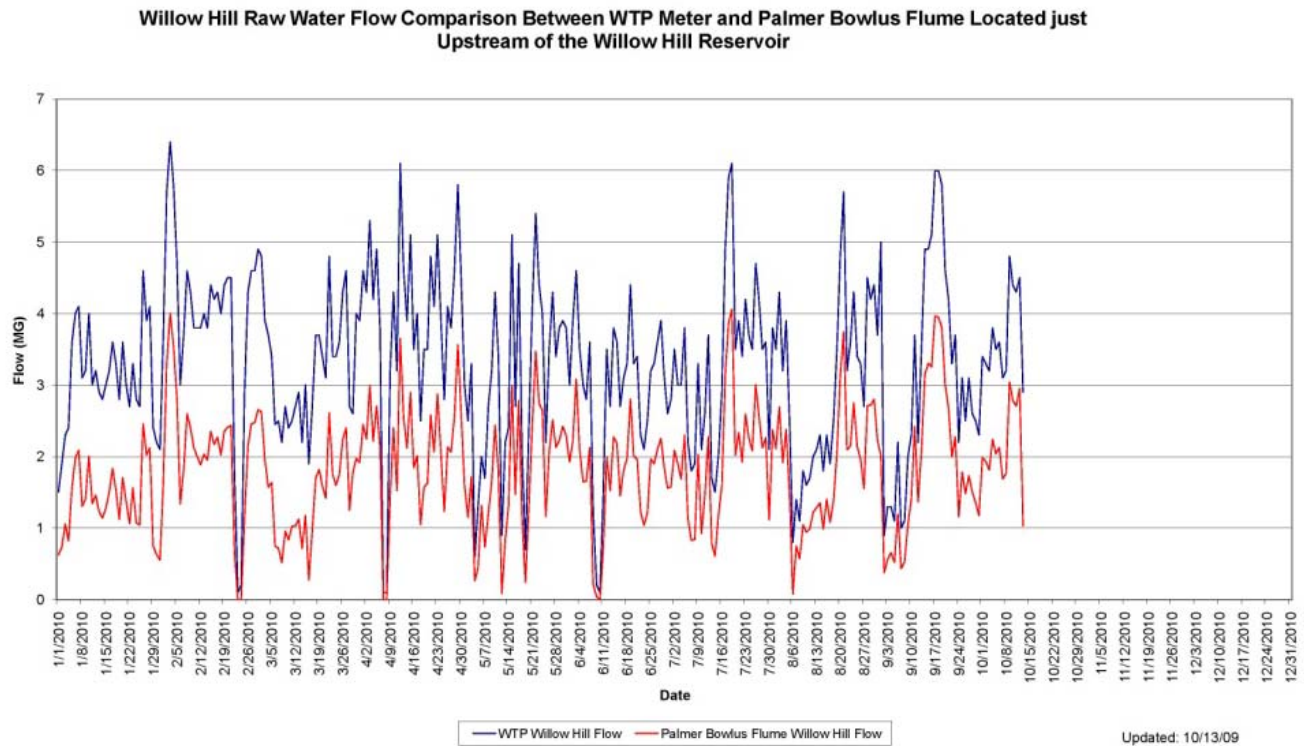
- Reducing water loss by an estimated 1,100 acre-feet per year
- Reducing energy consumption of combined water and wastewater treatment by an estimated 512 MWh per year
- Implementing a California Urban Water Conservation Council Best Management Practice

Detailed Description

The City of Folsom's Willow Hill Pipeline Rehabilitation Project is a major component of the City's water system and a focus of the City's overall System Operation Review (SOR) Program. The primary objective of the City's SOR Program is to optimize the City's water distribution system to maximize conservation and minimize system losses from unaccounted water. The City's proposed SOR is assessing the potential to increase water use efficiency, and enhance water management to ensure the long-term sustainability of the City's water supplies. Preliminary estimates suggest that the City can save and conserve between 5,000 and 10,000 acre-feet per year (AFY), or approximately 15 to 30 percent of the City's total water supply.

The Willow Hill Pipeline System is a key water main in the City's water system and consists of a 30-inch diameter raw water pipeline that runs approximately 3.5 miles from Randall Drive to the City's Willow Hill Reservoir. Preliminary data indicate that the Willow Hill System loses up to one million (1,000,000) gallons per day (mgd), or 1,100 acre-feet per year. It is estimated that it costs the City \$450 per acre foot (\$1,351 per MG) for its current water supply, operations, and conveyance of one acre-foot of water through the Willow Hill System. This equates to an annual loss of nearly \$500,000 per year in operations, maintenance and energy consumption. Through this project, the City seeks to minimize losses in this pipeline system by implementing improvements such as slip-lining the pipeline and/or replacing sections of the pipeline to reduce losses.

American River Basin Attachment 3 – Work Plan



The City of Folsom is projected to be short approximately 1,000 AFY of potable water supply starting in the year 2015. This shortage includes savings from ongoing aggressive water conservation efforts on the order of 25 percent on a city-wide basis. As the City does not have groundwater resources that can be used to overcome the deficit, additional water supplies will need to be acquired from other entities. Based on numerous discussions with other water purveyors in and around the region over the last several years, it could cost the City anywhere from \$400 - \$1,500 per acre-feet per year to purchase additional water supplies. This cost estimate includes the purchase, conveyance, treatment, and distribution of the water. Moreover, due to the Water Forum Agreement, limited opportunities exist to acquire additional supplies of that magnitude and reliability off of the lower American River. As a result, the City is currently looking for additional water supplies from the Sacramento River System, most likely to be diverted at the Freeport Regional Water Project and then conveyed via a new 30-mile pipeline to be constructed from Freeport back to Folsom.

The Willow Hill Pipeline Rehabilitation Project has been identified as a major project towards minimizing water system losses and reducing the need for future water projects, additionally, the water saved will reduce energy usage by 512 MWh per year (*Obadiah Bartholomy, Water Saving Carbon Equivalent Calculator*). Preparation of plans and specifications is expected to begin in the first quarter of 2011 with a targeted completion of October 2011. Commencement of construction activities are expected to begin in late November 2011.

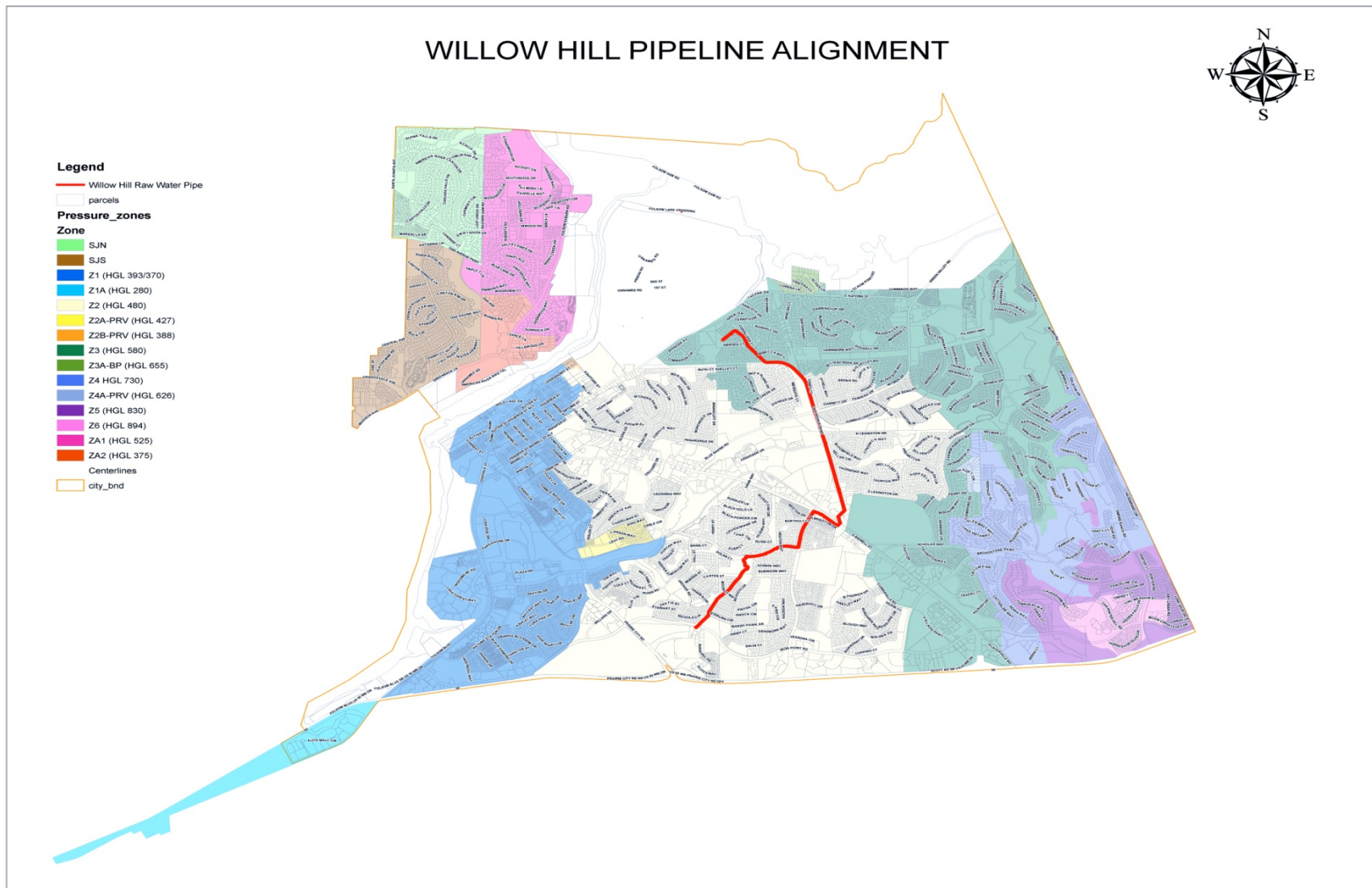


Figure 20: Location of Willow Hill Pipeline Rehabilitation Project

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes council communications, budget adjustments, project status meetings, and communication with RWA and contractors. To facilitate the transfer of grant funds, the City of Folsom has entered into an agreement with RWA through which any grant award reserved for the City of Folsom can be directed for use in project funding.

Task 2: Labor Compliance Program

The City of Folsom plans to use its own internal Labor Compliance Program. The City will obtain certification with the Department of Industrial Relations (DIR) prior to the start of construction. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the DIR will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Willow Hill Pipeline Rehabilitation Project. A project completion report will also be prepared at the end of construction, anticipated to be in January 2013. The City of Folsom will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly Reports as specified in the Grant Agreement
- Final reports as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The City of Folsom owns both the infrastructure and the associated property within the project boundary.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been, and will be, prepared to demonstrate the viability of the project and are listed below. At this time, project planning has been completed and design will start in January 2011.

Project design is scheduled to be completed by October of 2011, with construction to follow thereafter. The project is expected to be operational by December 2012.

Task 4: Assessment and Evaluation

The following studies have been completed for this project:

- *AWWA Standard Water Balance and Audit Report* (WSO Inc., September 2009) evaluated metered water data and system data to assess water loss volumes within the water distribution network.
- *Two Year Water Loss Control Program Outline* (WSO Inc., March 2010) identified and prioritized distribution system leaks and repairs.

No additional studies are required before implementing the Willow Hill Pipeline Rehabilitation Project. Leakages from the pipeline are documented and the technologies to be used to rehabilitate the pipeline are industry-standard.

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

Design has not yet started on the proposed project; however the City of Folsom anticipates that four design submittals will be prepared for the project, corresponding to the 10%, 30%, 90% and 100% (Final) Design documents. The 10% Design is expected to be completed by April 2011. This design will incorporate condition assessment work that will begin in January or February to define the type of rehabilitation required for the various pipeline segments. The 30% design submittal is expected to be completed in July 2011, with the 90% design completed in September 2011. The 100% (final) design will be completed in October 2011. Construction will occur during the low water demand period in the winter, therefore to meet that schedule, the City of Folsom will be releasing the advertising bid notice on less than 100% design and will provide the 100% design plan and specifications prior to accepting bids.

During design, AWWA and ASTM Construction Standards, as well as City of Folsom Standard details and specifications will be followed along with any other applicable project design and material standards.

Task 5 Deliverables:

- 10% (conceptual) Design/Condition Assessment
- 30% (concept) Design
- 90% (pre-final) Design
- Final (100%) Plans and Specifications

Task 6: Environmental Documentation

This project is a rehabilitation project of existing infrastructure and will not result in any increase of capacity; therefore, this project is categorically exempt from environmental review under the California

Environmental Quality Act as noted in Title 14 - California Code of Regulations, Chapter 3 - Guidelines for Implementation of the California Environmental Quality Act, Article 19 - Categorical Exemptions, Section 15302 - Replacement or Reconstruction. The Notice of Exemption will be filed by December 2011.

Task 6 Deliverables:

- Statement of Findings to document that the project is exempt from CEQA
- Notice of Exemption

Task 7: Permitting

The following permits are anticipated to be obtained for this project:

- An Amendment to the Public Water System Supply Permit issued to the City of Folsom is assumed to be required from the California Department of Public Health to incorporate the proposed repairs. As this project is a repair, the City of Folsom will work with the Department of Public Health to determine if the amendment is necessary.
- An Amendment to the Waste Discharge Requirements for City of Folsom is expected to be required from the Regional Water Quality Control Board due to discharges resulting from the repair work.

Any changes to the system will be coordinated with the California Department of Public Health.

Task 7 Deliverables:

- Public Water System Supply Permit Amendment (if required)
- Amendment to the existing Waste Discharge Requirements (WDRs) from the Central Valley Regional Water Quality Control Board

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

As described above, the bid advertisement period for this period will begin in September 2011 based on the 90% design. The 100% design will be distributed to contractors prior to accepting bids. Contract authorization by the City Council will occur within two weeks of the bid opening. Work items include a pre-bid contractor's meeting, Bid Advertisement, Notice of Award (NOA)/Notice to Proceed (NTP), and monthly progress reports. NOA is expected November 2011, and the NTP is expected in late November 2011.

Task 8 Deliverables:

- Public Notice to Bidders
- Notice to Proceed

Task 9: Construction

Construction of the Willow Hill Pipeline Rehabilitation Project is expected to commence in November 2011, with the project expected to be operational in December 2012. Details on the construction process are not currently available. Condition assessment work is expected to occur in January and February 2011, and will define the type of lining/rehabilitation work (mortar lining, slip-lining, removing and replacing, etc.) required for the various lengths of the pipeline.

Mobilization and Site Preparation

Upon the NTP, the contractor will mobilize and prepare the site and staging area(s), and perform any necessary pre-construction surveys.

Project Construction

Following site preparation, the contractor will begin rehab/repair of the Willow Hill Pipeline. As stated above, the type of repair (e.g. lining, replacement) will be determined during the condition assessment conducted in January 2011. During construction, the contractor will comply with all Stormwater Pollution Prevention Plan requirements and any other monitoring and reporting requirements in the permits, as well as performing traffic control.

Performance Testing and Demobilization

After repair of the pipeline is complete, City of Folsom staff will perform inspections and testing of the rehabilitated pipeline according to manufacturer recommendations. In addition, the contractor will perform site clean-up and demobilize. Following final testing and startup (including leak testing as required), project certification will be performed.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

As previously mentioned, a Categorical Exemption is expected for this project; therefore, no mitigation measures are anticipated. This project will comply with any permit requirements and will follow the measures outlined in the Stormwater Pollution Prevention Plan (if required for the project). Additionally, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting. Any benefits from the use of available water resulting from the water efficiency improvements will be addressed as a separate project.

Task 10 Deliverables:

- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other construction administration services. Contract administration and all field inspections will be performed by City of Folsom Staff. Construction administration/management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the City of Folsom's Willow Hill Pipeline Rehabilitation Project will be prepared under this task.

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 5% will be used for the Willow Hill Pipeline Rehabilitation Project. This percentage was based on prior experience with similar projects. The assumed contingency is less than other projects in the proposal due to the minimal open trenching expected as part of this project.

Project 12: Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project

Benefits of this project include:

- Creation of aquatic riparian habitat to mitigate for unavoidable habitat losses due to past and future levee improvements and bank protection activities to ensure flood protection for the Sacramento metropolitan area
- Establishing five acres of elderberry shrubs in an area currently covered by non-native grasses and blackberry vines
- Establishing 3.3 acres of new floodplain habitat for fish and wildlife habitat in the area previously covered by the elderberry shrubs
- Implementing a key habitat improvement on a nationally-designated Wild and Scenic River

Detailed Description

The Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project is located in the American River Parkway (Parkway) along the north (or right) bank of the American River one-half mile upstream of the confluence with the Sacramento River. The project has been developed to increase the frequency of flooded habitat availability for fish in the American and Sacramento Rivers during the spring and winter seasons and to provide improved riparian habitat for birds and other wildlife species. These enhancements will be achieved by lowering and re-grading the over-steepened river bank at the site and improving the quality of the upland habitat on the adjacent elevated floodplain. Grading and planting activities will occur in two phases over two construction seasons. The first phase involves transplanting existing elderberry shrubs and reseeded for erosion control, while the second phase involves degrading the existing bank at River Mile 0.50 Right (RM 0.5R), grading benches at various elevations, installing erosion control structures and woody material on the constructed benches and planting native grasses, tules, shrubs and trees on the benches and on the adjacent elevated floodplain. A portion of the funding match fulfills compensatory mitigation requirements for Sacramento Area Flood Control Agency's (SAFCA) Natomas Levee Improvement Program.

The project site includes the bank and floodplain at RM 0.5R on the American River Parkway. The floodplain is inundated by backwater while the river banks at the project site are steep and eroding due to a mild curve in the river. In 2000, a brush fire destroyed most of the mature riparian forest of large cottonwood and valley oaks on the site. A vegetation survey conducted in 2005 showed that the project site is mostly riparian scrub, consisting of wild blackberry, wild rose, and elderberry.

The Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project has been studied and proposed by the U.S. Army Corps of Engineers and the State of California Reclamation Board with assistance from SAFCA. SAFCA is the current project sponsor and lead agency for implementation.

Elderberry Transplanting – Phase 1

The first phase of the project involves transplanting elderberry shrubs that currently occupy approximately 2.5 of the 3.3 acres identified for floodplain habitat. The transplanting will be conducted from January 1 through February 15 in accordance with the Valley Elderberry Longhorn Beetle guidelines and requirements established during consultation with U.S. Fish and Wildlife Service.

Elderberry shrubs will be transplanted onto approximately five acres of upland that is currently covered in non-native weedy grasses, blackberry vines, and a few native trees. Prior to transplanting, the site will be ripped and the non-native vegetation and organic debris cleared and removed while retaining and protecting the native trees. Subsequent transplanting activities will include locating and flagging elderberry shrubs that are to be transplanted and clearing and removing other surrounding vegetation and debris. The elderberry shrubs will be transplanted using a truck-mounted tree spade to remove the entire shrub and root ball. The shrubs will then be transported to their new location in the transplant area and planted into the prepared ground. The five acres will also be planted with elderberry seedlings and associated riparian species in a more dense planting design to achieve the mitigation ratios established during consultation.

Floodplain Habitat Creation – Phase 2

The second phase of the project consists of creating fish and wildlife habitat by degrading the existing bank at RM 0.5R, excavating benches at various elevations, installing erosion control structures, and planting native plant species. This work would be conducted from July 1 to November 29, 2013.

Shaping of the enhancement site includes (1) excavating approximately 60,000 cubic yards of silty sand from the existing bank; (2) lowering the bank along the existing shoreline to an elevation as low as 4 feet above mean sea level (MSL), with a typical elevation of 6 to 12 feet, to achieve natural inundation frequencies consistent with the needs of fish and riparian vegetation (the average fall water surface elevation is just under 5 feet MSL), (3) creating a variably sloped area extending approximately zero to 120 feet inland from the existing shoreline and (4) creating a number of elevated benches in this area capable of supporting natural or planted vegetation adjacent to the water's edge.

Instream woody material (IWM) will be installed to reduce erosion due to flows and provide additional fish cover along the bank and on the bench. In addition to IWM, brush mattresses will also be installed to reduce erosion due to wave action and to provide fish habitat along the shoreline.

The planting plan depicts a thick band of vegetation near the river and a less dense and varied vegetation over the rest of the mitigation site. Flood-tolerant species such as button bush, cottonwood, willows, mulefat and box elder will be planted at the lower elevation ranges between 6 and 8 feet. White alder, Santa Barbara sedge, and California rose will be added to this mix in the area between elevations 8 and 11 feet. Larger species, vines, and herbaceous ground cover will be used in the area between elevations 11 and 16 feet. These include box elder, cottonwood, sycamore, valley oak, Oregon ash, California rose,

California blackberry, wild grape, mulefat, and creeping wildrye. In the highest area, coyote brush, and elderberry will be added to this mix and California rose, California blackberry, and mulefat will be removed. Suitable excavated top soil will be reused to install plantings and to support revegetation of disturbed areas. An irrigation system will be constructed to help ensure establishment and growth of the plantings. In addition, a beaver exclusion fence will be installed along the shoreline to increase plant survival.

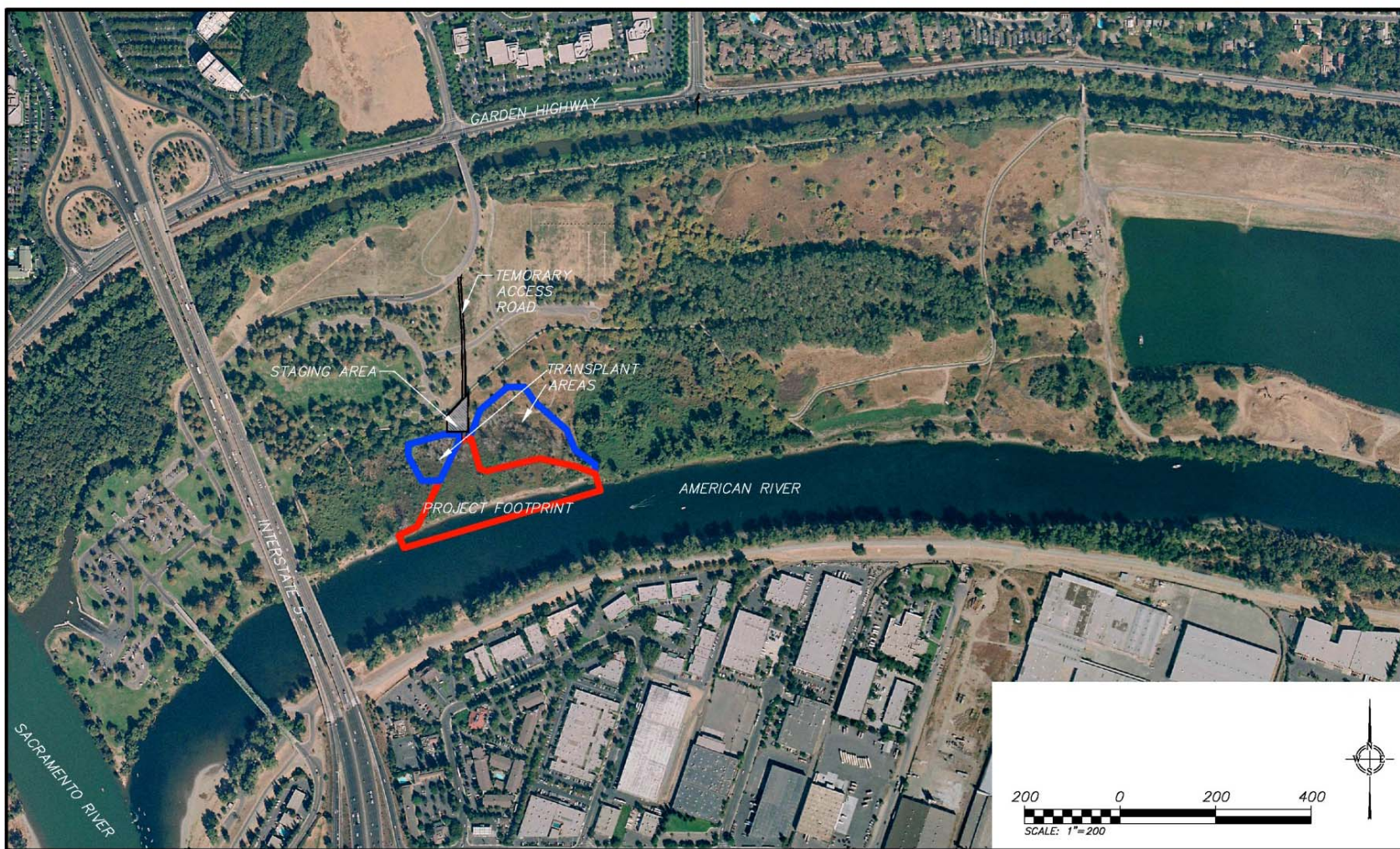


Figure 1: Project Site Map
American River RM 0.5 Mitigation
Proposed Boundaries

nhc
October 2008

Figure 21: Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Site Location

American River Basin Attachment 3 – Work Plan

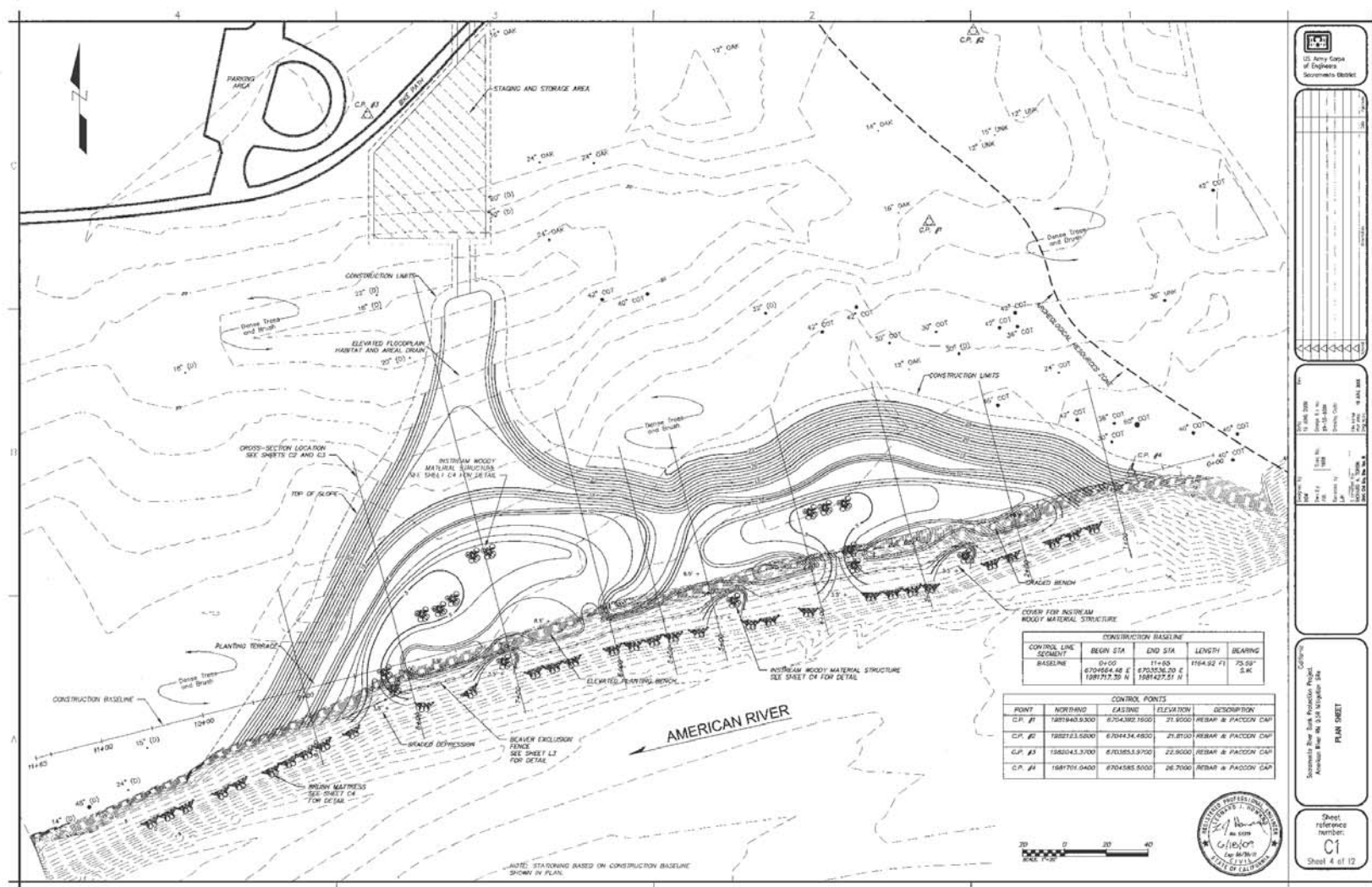


Figure 22: Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Site Plan

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

The project has three implementing agencies: Sacramento Area Flood Control Agency (SAFCA), County of Sacramento, and Water Forum. SAFCA is the project sponsor and will be responsible for implementing the project. The County of Sacramento is the property owner, and Water Forum is a stakeholder in the project.

Task 2: Labor Compliance Program

The Labor Compliance Program will be performed by Sacramento County Construction Management, who are already certified by the Department of Industrial Relations (DIR). The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the DIR will also be prepared and submitted.

Task 2 Deliverables:

- Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Lower American River Mile 0.5 Aquatic Riparian Enhancement Project. A project completion report will also be prepared at the end of the project, anticipated to be in December 2013. SAFCA will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly Reports as specified in the Grant Agreement
- Final reports as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The land for the proposed project consists of 11.43 acres purchased prior to 1984 by Sacramento County, a partner in this project. The County has calculated a market value of \$22,000 per acre for the use of the American River Parkway for restoration by outside parties. This cost will either be waived or paid by SAFCA. For this project, the anticipated cost for the use of the land is \$251,460.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are listed below. At this time the final design of the project has been completed stage. The project is planned to continue through construction and to be operational by November 2013.

Task 4: Assessment and Evaluation

A Basis of Design Report was completed for the Project in June 2009, prepared for the U.S. Army Corps of Engineers (USACE) by Northwest Hydraulic Consultants (NHC). The Basis of Design Report confirmed the feasibility of the project and built upon previous work by USACE and NHC, including the following studies:

- *Lower American River: River Mile 0.5 Right Mitigation Site* (NHC, June 2009) Planset submitted to SAFCA 2005 included preliminary drawings of the proposed project.
- *Peak Flows Technical Memorandum* (MBK Engineers, October 2006) Technical Memorandum that evaluated peak flows at the proposed project site.
- *Lower American River - RM 0.5 Mitigation Project: Velocity for Base Conditions and Project Conditions* (MBK Engineers, 2008) Evaluated velocity criteria at the proposed project site.

Task 4 Deliverables:

- No further deliverables are anticipated.

Task 5: Final Design

The 100% (Final) Design was completed June 19, 2009, concurrently with the Basis of Design Report. The Final Design Plans are included in this grant proposal.

The following standards were used during design:

- ASTM C 1077 Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
- ASTM D 3666 Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- ASTM D 3740 Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- ASTM E 329 Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
- Instream Woody Material Installation and Monitoring Manual, prepared for SAFCA by Jones and Stokes

Task 5 Deliverables:

- No further deliverables are anticipated.

Task 6: Environmental Documentation

An Environmental Assessment and Initial Study for CEQA and NEPA compliance were completed in December 2007 by USACE and a Notice of Determination and Project Approval was completed May 2008.

Task 6 Deliverables:

- No further deliverables are anticipated

Task 7: Permitting

In order to implement this project, the following permits will be required:

- Department of Fish and Game Section 1602 Streambed Alteration Agreement
- Section 2081 California Endangered Species Act Incidental Take Permit
- Army Corps of Engineers 404 permit and Section 7 consultation for Clean Water Act and Federal Endangered Species Act compliance
- Regional Water Quality Control Board Section 401 Permit for water quality certification
- Central Valley Flood Protection Board Encroachment Permit for permission to work in a floodway
- State Lands Commission Lease for permission to work on state lands (if required)
- Stormwater Pollution Prevention Plan (SWPPP) will be prepared by the contractor as a condition of the contract

All permits will be completed prior to construction with an expected approval date prior to August 1, 2012. The Section 7 consultation is currently underway. The permitting effort will be shared between in-house staff and a contractor, yet to be hired.

Task 7 Deliverables:

- Complete Permit package including all permits.

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Work items include advertising for bid, bid opening, reviewing the bids and issuing the Notice of Award/Notice to Proceed (NOA/NTP), as well as the Construction Contract Award and will be performed by SAFCA staff. The Final Design Package completed during Task 5 will be used for the bid advertisement.

Task 8 Deliverables:

- Public Notice to Bidders
- Notice to Proceed

Task 9: Construction

Mobilization and Site Preparation

Upon the NTP, the contractor will mobilize its equipment and crew according to the staging plan. This will include moving equipment and materials to the site, grading and surfacing laydown and access roads as required and any temporary trailer, portable toilets and/or fencing required.

Project Construction

After site mobilization and site preparation, project construction will occur in two phases. In the first phase (January – February 2013), elderberry shrubs that currently occupy approximately 2.5 of the 3.3 acres identified for floodplain habitat will be transplanted onto 10 acres of upland currently covered in non-native weedy grasses, blackberry vines, and a few native trees. Prior to transplanting, the site will be cleared and grubbed to prepare the upland area for the elderberry shrubs. The five acres will also be planted with elderberry seedlings and associated riparian species as established during consultation.

During the second construction phase, the existing bank at RM 0.5R will be reshaped to create fish and wildlife habitat. After the bank is reshaped, vegetation will be planted according to the planting plan. An irrigation system will be constructed to ensure establishment of the plantings, and a beaver exclusion fence installed along the shoreline to increase plant survival. This work will be conducted from July to November 2013.

As part of site clean-up, all equipment and excess materials will be transported offsite. Any disturbed areas outside the planting zones will be reseeded with native grasses to promote revegetation and minimize soil erosion. Finally, all work sites will be cleaned of all rubbish and all parts of the work will be left in a safe and neat condition suitable to the naturalistic and recreation setting of the Parkway.

Cleared vegetation, organic debris, unused top soil and any trash will be removed from the site via truck and disposed at the Sacramento County landfill or other approved site. The estimated 60,000 cubic yards of soil material excavated during grading and shaping of the floodplain will be removed by truck and stockpiled at a property owned by the Sacramento Area Flood Control Agency along the Garden Highway.

Performance Testing and Demobilization

As part of subtask 9.3, the contractor will perform site clean-up and stabilization. This subtask also includes the preparation of record drawings, final inspection and project certification, and contractor demobilization. Plant establishment monitoring will continue after construction.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

An Environmental Assessment and Initial Study for CEQA and NEPA compliance were completed in May 2008, resulting in a Mitigated Negative Declaration. All mitigation measures have been incorporated into the final design. Mitigation will be accomplished by avoiding sensitive resources through pre-

construction surveys. Elderberries on the site will be transplanted per US Fish and Wildlife Service requirements. Water quality will be protected via a SWPPP and BMPs, which will be the responsibility of the contractor.

In addition, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services. All activities under this task will be performed by a cooperating entity or a contractor. Construction management for this project will include the following work items:

- Review contractor's schedule and make recommendations
- Manage and coordinate all project inquiries, serve as focal point
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Other costs include care of the plantings and site geomorphology during the 3-year establishment period, including weeding, irrigation, replacement plantings, and minor corrections to erosion or other problems.

Also included in this budget category is Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.

- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for this project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A 20% construction/implementation contingency has been included and is detailed in Attachment 4. This rate is based on prior experience and engineering practice.

Project 13: Lower Cosumnes River Floodplain Restoration Project

Benefits of this project include:

- Promoting endangered and special species recovery, restoring habitat and providing flood amelioration by adding 143 acres of restored floodplain and tule marsh sloughs, connecting two tule marsh sloughs and allowing the 1- and 2-year storm events to connect to the floodplain
- Providing recreational opportunities by creating 500 lineal feet of ADA accessible paths and 3 ADA accessible hunting blinds

Detailed Description

The Lower Cosumnes River Floodplain Restoration Project is an improvement project that will provide multiple ecosystem benefits including endangered species recovery, rare habitat restoration, flood amelioration, and recreation as well as meet many IRWMP goals. The project is located within the Cosumnes River Preserve in the upper Sacramento-San Joaquin Delta. The Cosumnes River is the last free-flowing river on the west slope of the Sierra Nevada. Its lower reaches, including the proposed project location, flow through one of the biologically richest regions in California's Central Valley before merging with the Mokelumne River to flow into the Sacramento-San Joaquin Delta and eventually the Pacific Ocean. The project site is located in the Cosumnes River Preserve - Cougar Wetlands Unit, which is owned and managed by the Bureau of Land Management. The Cosumnes River Preserve is a collaborative partnership between federal, state, and private landowners to conserve, restore, and manage the upland, wetland, riparian, and riverine habitat associated with the lower Cosumnes River.

The Cougar Wetlands Unit was historically an active floodplain of the Cosumnes River, but was leveled for agricultural uses decades ago. The natural river levee was improved for flood control, and the historic tidal sloughs were filled for agricultural crop production. The project site is currently managed as a seasonal wetland that is filled with pumped river water from an existing agricultural diversion on the Cosumnes River.

This project provides a rare opportunity to restore historic floodplain connectivity to the lower portion of a Central Valley river. The Cosumnes River is typical of other mid-Central Valley rivers with its degraded channel lacking complexity and few connections to side channels, backwaters, or low elevation floodplains. This condition creates a tendency for juvenile Chinook salmon to be forced downstream during high flow events, without an opportunity to rear in slack water areas, such as floodplains. While still considered free-flowing, the Cosumnes River has many irrigation diversions and is subjected to a depleted groundwater table. These irrigation withdrawals deprive the middle section of the river just upstream of the project site of sufficient water to sustain perennial flows. Nevertheless, the lower portion of the Cosumnes River is tidally influenced to a point just upstream of the project location (near the community of Thornton, California), making it ideal to provide perennial, off-channel habitat for multiple Federally-listed species including Steelhead trout, giant garter snake, and fall-run Chinook salmon.

Recent investigations by the University of California, Davis have found that the Central Valley is lacking Floodplain Activation Flood (FAF) capacity (Swenson et al., 2002). The FAF was defined as a “relatively frequent, long duration, spring-time flood that has particular value for native fish and food web productivity.” The researchers found that there is very little floodplain area inundated by the FAF in the Sacramento Valley and Delta. The Lower Cosumnes River Floodplain Restoration Project seeks to provide FAFs to the Cosumnes River by removing portions of the existing levee to provide frequent inundation occurrences at relatively low flows.

Proposed project activities will include levee breaching, interior floodplain de-leveling, and installing fish exclusion screens on existing water intake structures. Currently, only high flows over the existing levee inundate the site for extended periods. Flood waters can only recede through a small discharge pipe at the downstream corner of the project site. As the flood recedes, the site traps a small pool of water that strands an unknown number and diversity of fish species. The proposed project will open two breaches in the levee to provide perennial and tidal connectivity of the Cosumnes River to the floodplain. From the breaches, a channel will be cut into the site to re-establish two historic tidal slough channels. Multiple slough side channels with varying elevations and small sub-floodplains will also be excavated off the two main channels. The upper ends of the two historic sloughs are further diked off from the floodplain and are currently managed to retain floodwaters for wintering waterfowl and seasonal brood rearing ponds. This management regime will continue, however fish screens will be installed on the pond inlets to prevent fish entrainment in the managed ponds.

The proposed project has multiple ecosystem benefits including endangered species recovery, rare habitat restoration, flood amelioration and recreation. The project is designed to provide fall-run Chinook salmon juvenile rearing habitat in the re-established sloughs and overall floodplain reconnection. The freshwater tidal areas will also provide potential giant garter snake foraging habitats throughout establishment of permanent water bounded by perennial wetland vegetation. These two benefits stem

from the restoration of riparian forest. California has lost nearly 95% of its historic riparian forest; the Cosumnes River Preserve protects some of the last remaining old-growth gallery riparian forest in the Central Valley. This project will focus on restoration of this habitat type. Further, the project will provide additional floodplain area that will help to ameliorate flooding along the lower Cosumnes and Mokelumne Rivers. By allowing the Cosumnes River continued access to the floodplain, this project may also help recover depleted groundwater in the lower Cosumnes River area.

The proposed project is part of the *Cosumnes River Preserve Management Plan* (Cosumnes River Preserve, March 2008), which is focused on establishing and restoring riparian forest. The project is coordinated with the *Central Valley and Riparian Habitat Joint Venture's Strategic Implementation Plans*. This project follows the recommendations for floodplain ecosystem restoration as identified in the *Final Recommendations Report of the California Floodplain Management Task Force* (California Floodplain Management Task Force, December 2002), and is consistent with the *Lower Cosumnes River Watershed Assessment* (Robertson-Bryan, Inc, 2006).

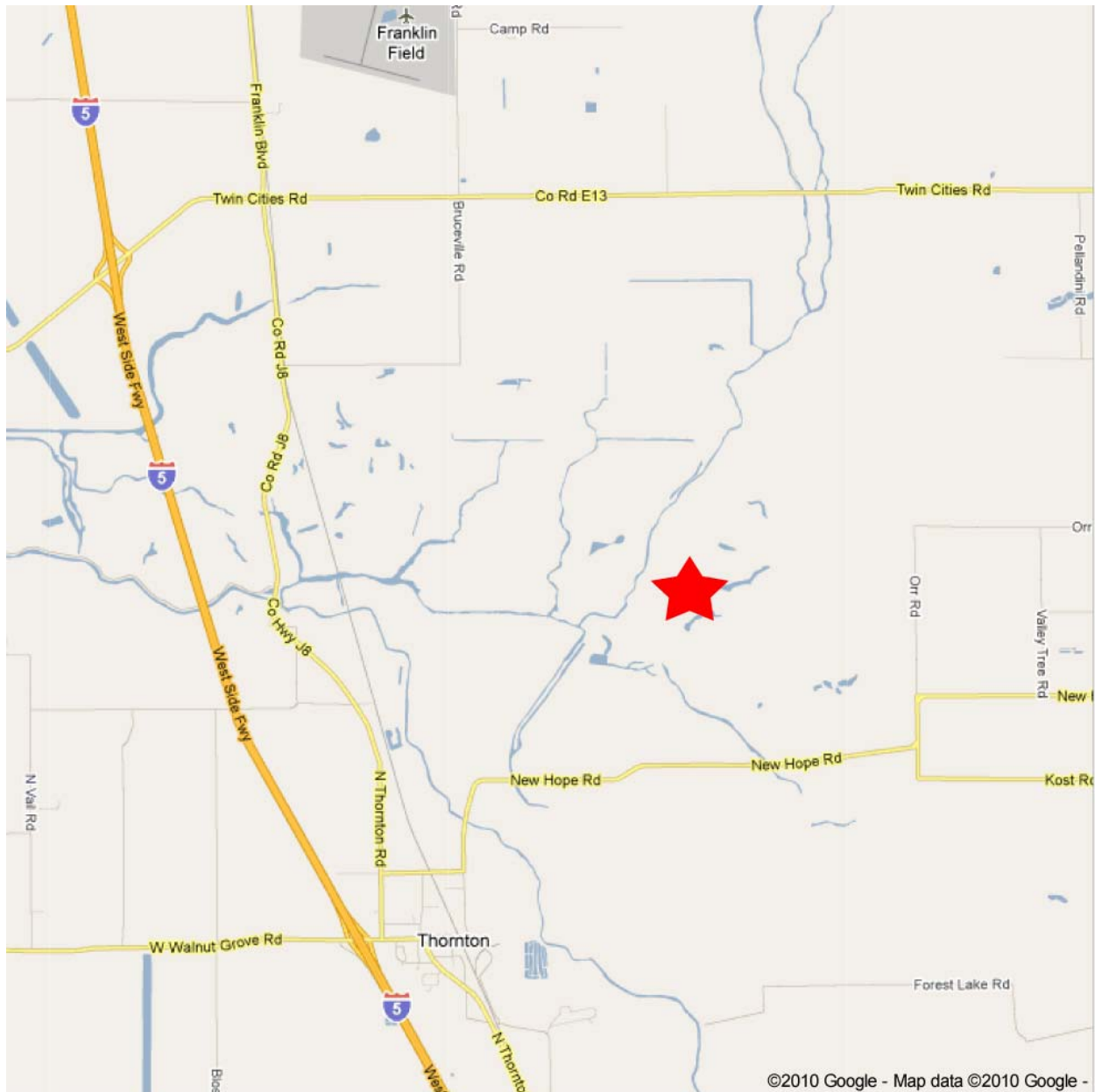


Figure 23: Lower Cosumnes River Floodplain Restoration Project Location

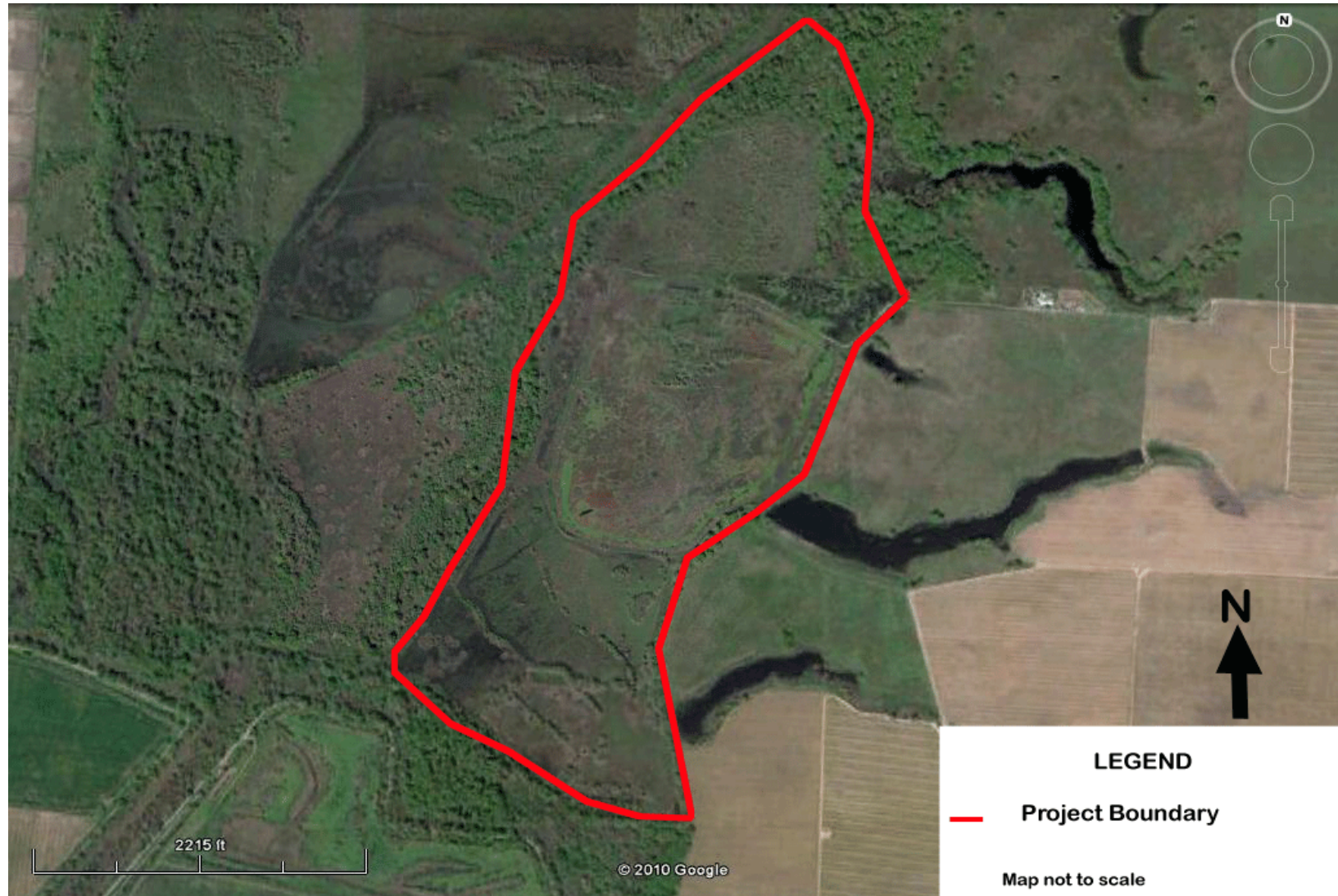


Figure 24: Lower Cosumnes River Floodplain Restoration Project Boundary

American River Basin Attachment 3 – Work Plan

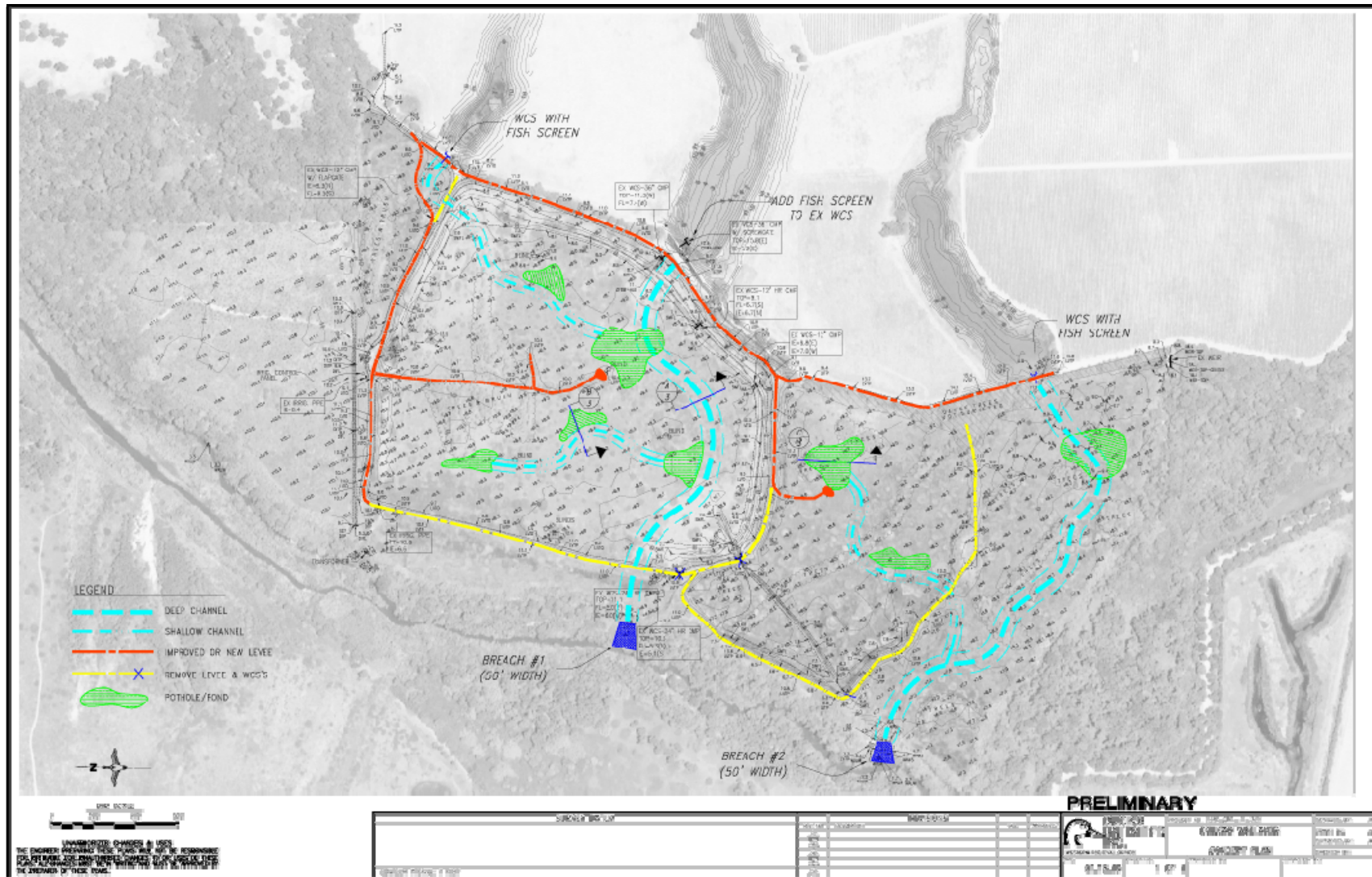


Figure 25: Lower Cosumnes River Floodplain Restoration Project Conceptual Plan

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration includes communication with RWA and contractors, budget adjustments, and project status meetings. To facilitate the transfer of grant funds, Ducks Unlimited has entered into an agreement with RWA through which any grant award reserved for Ducks Unlimited can be directed for use in project funding.

Task 2: Labor Compliance Program

Ducks Unlimited plans to use a third-party's labor compliance program, as has been done previously. The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Lower Cosumnes River Floodplain project. A project completion report will also be prepared at the end of the project, anticipated to be at the end of November 2013. Ducks Unlimited will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The project site is located on the Cosumnes River Preserve - Cougar Wetlands Unit, which is owned and managed by the Bureau of Land Management. The Cosumnes River Preserve is a collaborative partnership between federal (including the Bureau of Land Management), state, and private landowners. No land purchases or easements are required for this project, and therefore, there are no associated costs in the budget.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been and will be prepared to demonstrate the viability of the project and are listed below. At this time, the 10% Design has been completed. Final design will be completed by late May 2012, followed by construction with anticipated completion in October 2013.

Task 4: Assessment and Evaluation

To date, there have been three studies completed that are specific to the Lower Cosumnes Floodplain Restoration Project. These studies are briefly described below:

- The *Cosumnes River Preserve Management Plan* (Kleinschmidt, March 2008) documented the management plans for the Cosumnes River Preserve for the next ten years. The two overarching goals in this plan were to improve stewardship of the lands in the Cosumnes River Watershed and to restore and maintain, at sustainable conditions and populations, the native biological communities and the resident and migratory species that are depend on these communities. These objectives along with the IRWMP goals and objectives were used to guide the development of this project.
- The *Lower Cosumnes River Watershed Assessment* (Robertson-Bryan, Inc., December 2006) provided a baseline characterization of the current physical, biological, and cultural resources associated with the Cosumnes River. Hydrology, geomorphology, biological resources, and cultural resources data was collected and summarized in this assessment.
- The study entitled *Restoring Floods to Floodplains: Riparian and Floodplain Restoration at the Cosumnes River Preserve* (Swenson et al., 2002) discussed the benefits that intentional levee breaches have brought to the Cosumnes River ecosystem. This approach to restoration efforts is cheaper than other active measures that have been implemented on the Cosumnes River.

Prior to implementation of this project, a Floodplain Hydrologic Modeling Study will be completed to identify flood stage and distribution changes from the project. This modeling will also verify the feasibility of the project with respect to the project's effects on the Lower Cosumnes River. This study is expected to be completed in July 2011.

Task 4 Deliverables:

- Hydrologic Flood Evaluation and Report

Task 5: Final Design

Ducks Unlimited completed the 10% design of the Lower Cosumnes Floodplain Restoration Project in January 2010 and will complete the 30%, 60% and 100% designs in June 2011, September 2011, and May 2012, respectively. The 100% (or final) design will be the design package that is used to advertise the bid for construction. The package will consist of the complete, signed plans and specifications.

During design, AWWA and ASTM Construction Standards, Occupational Safety & Health Administration (OSHA) regulations, and industry standard practice will be used as construction standards

and health and safety standards. All other applicable project design and material standards will also be used.

Task 5 Deliverables:

- 30% Design
- 60% Design
- Final plans and specifications
- Bid package

Task 6: Environmental Documentation

Environmental documentation has not yet been completed. A CEQA Mitigated Negative Declaration (MND) will be prepared starting July 2011 and is expected to be completed by February 2012. To comply with NEPA, an Environmental Assessment will also be developed starting July 2011 and expected to be completed by February 2012; the Environmental Assessment will specifically help satisfy the federal Endangered Species Act and National Historic Preservation Act as required for federal funding currently being sought for the project.

Task 6 Deliverables:

- Draft Mitigated Negative Declaration
- Draft Environmental Assessment
- Approved and adopted Mitigated Negative Declaration
- Approved and adopted Environmental Assessment

Task 7: Permitting

In order to implement this project, the following permits will be acquired:

- Department of Fish and Game Section 1600 Streambed Alteration Agreement for construction in the Cosumnes River. DFG is a partner on the Cosumnes River Preserve and will assist with development of the permit.
- Army Corps of Engineers Section 404 permit for Clean Water Act and Federal Endangered Species Act compliance.
- Regional Water Quality Control Board Section 401 Permit for water quality certification
- Central Valley Flood Protection Board Encroachment Permit for permission to work on the levee.
- State Water Quality Control Board Stormwater NPDES Permit for Construction
- A Stormwater Pollution Prevention Plan (SWPPP) will be drafted by the contractor to help minimize the impacts of stormwater runoff from the construction site by documenting stormwater BMPs and for state environmental compliance.

All permits will be acquired prior to construction with an expected approval date prior to May 30, 2012. Permits will be prepared, submitted and acquired by Ducks Unlimited as an agent of the Bureau of Land Management (landowner).

Task 7 Deliverables:

- Complete Permit package including all permits

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

All work under Task 8 will begin after final design is complete. The Final Design Package, completed during Task 5, will be used for the bid advertisement. Work items under Task 8 include preparing and soliciting bids, opening and reviewing the bids, performing contract negotiations and issuing the Notice to Proceed (NTP).

Task 8 Deliverables:

- Advertisement for bids
- Evaluation of bids
- Award of construction contract

Task 9: Construction

Construction is anticipated to begin in August 2012 and to be complete by the end of October 2013. Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Upon the NTP, the contractor will mobilize its equipment and crew according to the staging plan and perform possible pre-construction surveys, including determining the presence of giant garter snakes as required for NEPA compliance.

Project Construction

During project construction, the construction contractor will excavate interior slough channels, construct interior access roads, and install fish exclusion screens on existing water intake structures. The levee will be breached in two locations to provide perennial and tidal connectivity between the river and the floodplain. From the breaches, a channel will be cut into the site to re-establish two historic tidal slough channels. Multiple slough side channels with varying elevations and small sub-floodplains will also be excavated off the two main channels. Inspection and testing will be performed on the constructed project by engineers from Ducks Unlimited, followed by revegetation and plant establishment. The construction contractor has sole and complete responsibility for the safety of all personnel and property on site for the project direction and will perform within OSHA and any other applicable codes, regulations, and ordinances.

Performance Testing and Demobilization

In this construction stage, the contractor will perform site clean-up and stabilization. Final inspection and project certification (which will be performed by engineers from Ducks Unlimited) will also be performed along with contractor demobilization. Inspections and project certification will be performed by Ducks Unlimited staff.

After project completion, fish and water quality monitoring will be performed. Fish monitoring will identify and evaluate native fish use of the project site after completion. Specifically, the fish monitoring will examine the fall run Chinook Salmon, Sacramento Splittail, and Delta Smelt. Providing juvenile fish rearing habitat for these species is one of the primary goals of the project and monitoring will be used to assess ultimate success of the project. A specific fish monitoring protocol will be solicited/developed when project funding is secured.

Water quality monitoring will include turbidity, salinity, nutrients both within the floodplain and the adjacent Cosumnes River upstream and downstream of the project site. A specific water quality monitoring protocol will be solicited/developed when the project funding is secured. Funding for fish and water quality monitoring is not being requested in this grant application.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented under Task 10 as well as any mitigation measures identified in the approved Mitigated Negative Declaration and Environmental Assessment. The SWPPP BMPs will include seeding of all disturbed soil areas and equipment staging areas and other stormwater measures for post-construction project stabilization. Mitigation measures for CEQA and NEPA compliance are anticipated to consist of timing construction to occur during the non-breeding season for the Swainson's Hawk and other birds, and monitoring sensitive flora and fauna species during project implementation. Cofferdams will also be constructed to prevent sedimentation and preserve water quality in the Cosumnes River during implementation of the project. Development and implementation of the SWPPP will be the responsibility of the contractor.

In addition, implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration and management work items will be conducted under this task. Ducks Unlimited staff will complete work associated with bidding/contracting, construction management services during construction and inspections during construction. Some of these specific work items include:

- Contract bid solicitation, review and selection
- Management of construction contracts
- Review contractor's schedule and make recommendations
- Manage and coordinate all contractor correspondence
- Maintain detailed project records
- Perform field construction inspections

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the Lower Cosumnes River Floodplain Restoration Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

An approximately 12% construction/implementation contingency has been included for this project. This value was chosen due to the stage of the project as well as experience with past projects. More detail is provided in Attachment 4.

Project 14: OHWD / Rancho Murieta Groundwater Recharge Project

Benefits of this project include:

- Increasing water supply reliability and improving emergency supply response by injecting 4,000 acre-feet per year into the groundwater basin
- Providing Rancho Murieta with a reliable average of 300 AFY of water supply at all times
- Increase groundwater elevation by 2 to 5 feet in the aquifer in the vicinity of the recharge basin in the next 10 years

Detailed Description

The OHWD/Rancho Murieta Groundwater Recharge Project is a regional conjunctive use project that will divert 4,000 acre-feet per year (AFY) of available water owned by Rancho Murieta Community Services District (RMCS D) to spreading basins in the Omoichumne-Hartnell Water District (OHWD) service area to allow recharge of the groundwater aquifer. This project will benefit RMCS D by allowing the recovery of some of the stored water during dry years to meet water supply shortages, while also benefiting OHWD by increasing groundwater levels in the aquifer that is utilized by land owners in the OHWD. The project also enhances regional salmon migration, as the project will assist in the reconnection of the groundwater with the Cosumnes River surface water; this connection is necessary to establish and maintain Fall river flows for salmon migration.

This project will be constructed in three phases—Phase 1, Phase 2 and Phase 3. Phase 1 consists of the installation of a diversion unit and construction of a spreading basin. During Phase 2, recovery well(s) and transmission pipeline(s) will be installed by RMCS D in close proximity to Rancho Murieta to fulfill its drought augmentation supply need. In Phase 3, an inflatable Obermeyer weir will be installed to improve diversion capabilities. OHWD and RMCS D are requesting funding for Phases 1 and 2 of this project, which can be operated without Phase 3. Phase 3 will be self-funded by OHWD using a combination of the District's resources and grant funding, if available. This project phase will be constructed later and will improve the efficiency of the project, but is not necessary for the function of the overall project.

During Phase 1 of the OHWD/Rancho Murieta Groundwater Recharge Project, a new pump station and intake will be installed on the Cosumnes River upstream of Blodgett Dam. The new pump station will be capable of drawing up to 30 cubic feet per second (cfs), and will draw water from a wet well placed in the river bank area hydraulically connected to the river. A culvert will connect this wet well to the intake structure, which will screen the diversion to protect fishery resources. Power sources for the lift station

and fish screen will be installed by Sacramento Municipal Utility District (SMUD) as part of this project. The Phase 1 project will also include construction of approximately 600 feet of pipeline to convey the water from the pumping unit to the spreading basin. Existing soils in the project area will be tested to determine their suitability as a backfill around the pipeline and levee protection features. Pressure relief and vacuum valves would be installed to provide pipeline protection. A riprap outflow structure will be constructed in the spreading basin to dissipate energy from water flow and provide protection against soil erosion. The spreading basin will be constructed to allow infiltration of water and will require removal of top soil to improve the infiltration rates and provide earth material needed for constructing berms around the basin. A monitoring well will also be completed within the spreading basin to assess groundwater impacts. Field experience during drilling will determine if more than one well will be required.

The scope of work for Phase 1 of the OHWD/Rancho Murieta Groundwater Recharge Project includes engineering services; specifically project design, construction management and overall project management. All necessary permits will be obtained prior to construction, and the project will comply with all federal and state environmental laws necessary to accomplish the work. In addition, RMCS D will apply to the State Water Resources Control Board (SWRCB) to obtain a permit for a new point of diversion on the Cosumnes River for the project in addition to other 'standard' permits such as Sacramento County permits to drill and install a groundwater monitoring and recovery wells.

Once the project is operational, water will be diverted from the Cosumnes River at Blodgett Dam during high flow season to a 90-acre spreading basin located south of Folsom South Canal between the Cosumnes River and Deer Creek. Preliminary investigations in the Cosumnes River floodplain in nearby locations showed an infiltration rate of six to eight inches per day. These infiltration rates will allow for a direct groundwater recharge of 1,000 acre-feet per month, when surface water is available for recharge. Operation of the recharge facility will entail management of water into the recharge facility, after completion of facilities construction, and out of the recovery wells, after the completion of the Phase 2 project. The final operational parameters will depend on the quantity, quality, and availability of the source water and the infiltration capacity of the facility.

OHWD will be responsible for facilities maintenance, post-construction. Maintenance will generally consist of routine maintenance of equipment and removal of clogging materials from the recharge facility, which is the most crucial maintenance effort. Sediment would be removed by scraping and ripping to rejuvenate infiltration rates.

In Phase 2 of the project, RMCS D will construct wells in or near their service area to allow recovery of water during shortage periods. The recovery can take place on a regular cycle, such as the annual dry season, or it may simply be part of the long-term plan, such as for future drought protection.

The Phase 2 scope of work consists of construction of a 500 to 600 foot deep groundwater well capable of producing between 500 and 600 gallons per minute (gpm). RMCS D has identified several possible well sites in the area that, based on existing information, appear to be suitable. While one well is currently planned for construction, the District acknowledges that additional wells may need to be constructed in the future, depending on future development scenarios. In addition to the proposed well, a 5,000-foot 10-

inch diameter transmission pipeline will be constructed to convey extracted groundwater to the District's existing distribution system. The connection point will be a 10-inch diameter stub, located at the southwest end of the distribution system. No pretreatment of the groundwater is anticipated as the extracted water will be blended with available surface water supplies and will only be used in periods of water shortages or droughts.

Finally, in Phase 3 of the OHWD/Rancho Murieta Groundwater Recharge Project, OHWD will modify its existing flashboard dam by installing an inflatable Obermeyer weir on the upstream face of the existing structure. This weir structure will operate in conformance with required permits, reducing energy costs, and improving recharge during marginal seasons. This phase of the project is expected to be completed by 2020.

Each phase of the OHWD/Rancho Murieta Groundwater Recharge Project is independent and fully operational independent of subsequent project phases. The benefits of the proposed project were identified in the RMCSO's *Integrated Water Management Plan*, updated in 2010. Currently, RMCSO's only water supply is surface water diversions from the Cosumnes River during November through May. Water is currently stored in three surface water reservoirs for year-round use. The benefits conveyed by the proposed project are two-fold: first, the project will supply water in years when the river flows do not allow full diversions, providing a reliable water supply; and second, the project expands supply options should there be a catastrophic failure at the water plant, (wildfire as example) or if reservoir supplies become contaminated. A series of figures are included in the following pages to depict project location.

American River Basin
Attachment 3 – Work Plan

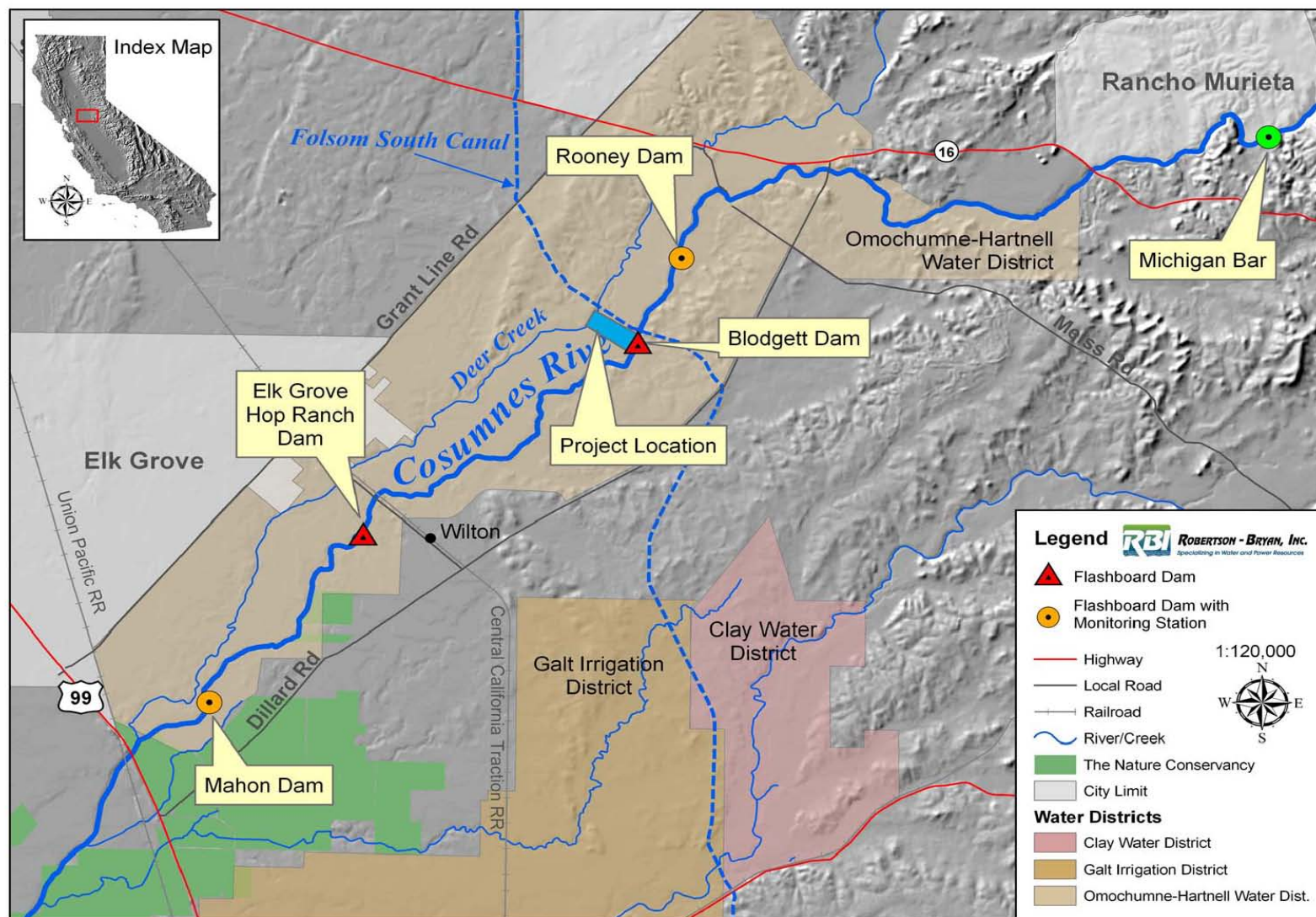


Figure 26: OHWD/Rancho Murieta Groundwater Recharge Project Location



Figure 27: OHWD Project Site



Figure 28: Rancho Murieta CSD Proposed Well and Pipeline

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

Work to be completed as part of Task 1, Administration, includes Board communications, budget adjustments, project status meetings, communication with RWA and contractors, and between the two participating agencies, Omoichumne-Hartnell Water District (OHWD) and Rancho Murieta Community Service District (RMCSD). For the purposes of this project, OHWD will be lead project sponsor for the Phase 1 project, while RMCSD will be the lead project sponsor for the Phase 2 project. To facilitate the transfer of grant funds, both OHWD and RMCSD have entered into an agreement with RWA through which any grant award reserved for the District's can be directed for use in project funding.

Task 2: Labor Compliance Program

Both OHWD and RMCSD plan to use a third-party's labor compliance program, as has been done previously. As the two project phases will be constructed independently, separate labor compliance programs will be prepared. Labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the OHWD/Rancho Murieta Groundwater Recharge Project. A project completion report will also be prepared at the end of the project, anticipated to be in June of 2013. Both OHWD and RMCSD will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly reports as specified in the Grant Agreement
- Completion report as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

The proposed location of the project is not owned by OHWD or RMCSD. For the spreading basin location (part of the Phase 1 project), the land is owned by a private owner. OHWD has contacted the

land owner and they are very interested in providing a land lease for the project. OHWD and the land owner are currently working toward developing a lease agreement for an initial 10-year period with an option for an additional 10-years, ensuring a 20-year lifetime on the spreading basin. A letter of support from the land owner to OHWD is included as supporting documentation to this Proposal. In addition, the necessary easements will be secured for the intake and pipeline portion of this project phase. For the Phase 2 project (extraction well and transmission pipeline), the proposed well location is within an easement dating back to 1995. However, portions of the transmission pipeline will be outside of the existing easement, so new easement extensions will need to be negotiated.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have been prepared to demonstrate the viability of the project and are described below. At this time, the concept (10%) design has been completed. Both Phase 1 and Phase 2 of the project will be constructed (concurrently) starting in July 2012 and will be operational by May 2013.

Task 4: Assessment and Evaluation

The *Central Sacramento County Groundwater Management Plan* (MWH, February 2006) documented water supplies and water uses within the Central Sacramento County and determined the long-term sustainable yield of groundwater from the Central Basin to be 273,000 acre-feet per year (AFY). Groundwater provides a substantial amount of the overall water supply for the region, and a goal of the groundwater management plan was to maintain or increase the amount of groundwater stored in the basin over the long term.

The *Rancho Murieta Community Services District Integrated Water Master Plan* (Rancho Murieta Community Services District, November 2009) evaluated the water supply and water demands for RMCS D and made recommendations for addressing the District's susceptibility to reductions in available water supply due to drought, as well as options for reducing reservoir drawdowns in average years. This plan identified using groundwater supply in a conjunctive use scenario to significantly reduce reservoir draw downs and eliminate drought deficits.

In 2010, the International Journal of Water Resources & Arid Environments published a paper entitled *Planning and Implementation of Groundwater Storage and Recovery Systems* (Ali Elhassan *et. al.*, Robertson-Bryan, Inc.) in which the use of infiltration basins as a groundwater recharge element was analyzed. The paper outlined a Phase 1 investigation where potential recharge locations in the South Sacramento County groundwater basin were analyzed. Specifically, the study identified three possible recharge site locations within the Floodplain Formation, including the area of the proposed project. This analysis was supported by other information accumulated by RMCS D from site-specific soil borings, aquifer gradations, and test well drilling in the area to support the anticipated well yield and project feasibility.

Task 4 Deliverables:

- None (studies previously completed)

Task 5: Final Design

Conceptual design (10% design) of the project has been completed; four additional design deliverables (namely the 30%, 60%, 90% and 100% designs) will be prepared and submitted as part of the project. Bid packages will be prepared along with the final (100%) design; as described in Task 8, at present, it is anticipated that the project will be split into four bid packages.

All materials used and procedures followed will conform to American Society for Testing and Materials (ASTM) designations, State specifications, and other applicable engineering standards such as American Society of Civil Engineers (ASCE), American Water Works Association (AWWA) and California Water Well Standards (California Department of Water Resources, Bulletin 74-81 and Bulletin 74-90).

Task 5 Deliverables:

- 30% Design Package
- 60% Design Package
- 90% Design Package
- 100% (Final) Design Package
- Bid Package for Construction of Diversion Unit, Conveyance System, Spreading Basin, and Monitoring Well
- Bid Package for Installation/Construction of Well Boring and Casing
- Bid Package for Installation/Construction of Well Head, Pump and Electrical Controls
- Bid Package for Transmission Pipeline

Task 6: Environmental Documentation

For this project, OHWD will draft, submit and adopt an Initial Study and Mitigated Negative Declaration (IS/MND) for the Phase 1 components of the OHWD/Rancho Murieta Groundwater Recharge Project (intake, conveyance pipeline and spreading basin). Concurrently, RMCSD will prepare and adopt an IS/MND for the Phase 2 components of the project (extraction well and transmission pipeline). The IS/MND will document foreseeable and mitigatable adverse environmental impacts during the construction and operation of this project, as well as any mitigation or enhancement measures required to ensure the project does not cause significant adverse environmental impacts. The Final IS/MNDs are expected to be adopted by April 2012.

In addition to the IS/MNDs prepared for the project infrastructure, RMCSD will complete an IS for the Water Rights proceedings to allow for a second point of diversion and a second place of use for the river diversions. Minimal impacts are anticipated and a Mitigated Negative Declaration will subsequently be completed and adopted for the water rights portion of the project. The Final IS/MND for the Water Rights is expected to be adopted by November 2011.

Task 6 Deliverables:

- Draft and Final IS/MND for Phase 1 Infrastructure (intake, conveyance pipeline and spreading basin)
- Draft and Final IS/MND for Phase 2 Infrastructure (extraction well and transmission pipeline)
- Draft and Final IS/MND for Water Rights

Task 7: Permitting

For this project, five construction permits and two operational permits are required. To permit construction activities in or on the banks of a stream, a U.S. Army Corps of Engineers Section 404 Permit and a California Department of Fish and Game Section 1601 Permit will be required. A Regional Water Quality Control Board Section 401 Permit will also be required to ensure water quality compliance during construction in or on the bank of a stream. For the installation of the monitoring well at the spreading basin and for the extraction well, Sacramento County Well Permits will be required. For both projects, compliance with the State's General NPDES Permit for Stormwater Discharges during construction will be required.

For operation of the project, a California Division of Water Rights Additional Point of Diversion permit will be required to allow the diversion of water from the stream to the spreading basins and a California Department of Public Health approval will be required to amend the RMCS D's water supply permit for allow the new water supply.

Task 7 Deliverables:

- Complete permit package including all permits.

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

At present, it is anticipated that the project will be split into four bid packages: one bid package will be distributed for the construction of a diversion unit, conveyance system, spreading basin and monitoring well; the second will be for construction of a monitoring well; the third will be for construction of well head facilities including plumbing, pump and electrical controls; and the fourth bid package will be for construction of the transmission pipeline. Bid packages may be combined; however, this decision will be made at the time of bidding.

Bid advertisement is expected to occur in March 2012, with one or more Notices to Proceed released in late June or July 2012. Construction of all elements of the project will occur concurrently, with above-ground well facilities trailing construction of the below-grade well casing.

Task 8 Deliverables:

- Public Notice to Bidders for each portion of the project
- Notice to Proceed for each portion of the project

Task 9: Construction

Construction of both phases of the project (Phase 1 and Phase 2) will occur concurrently and are expected to start in July 2012. Construction is expected to be completed by June 2013.

Mobilization and Site Preparation

Mobilization and site preparation for this project will include pre-construction surveys; grubbing and clearing for site access; prepping of the staging area, spreading basin site, diversion unit site and pipeline route; and the implementation of any required mitigation actions. Site preparation also includes designation of staging areas and grading access ramps to diversion unit site near the Cosumnes River and to the spreading basin to meet the existing levee road, and winterization of the site(s) in October in anticipation of winter season.

Project Construction

As part of Phase 1 construction, OHWD is proposing to install a new pump station and intake on the right bank of the Cosumnes River near River Mile 22, upstream of Blodgett Dam. The new pump would draw water from a wet well placed in a river bank area that is hydraulically connected to the river. A culvert would connect this wet well to the intake structure on the river. The intake structure would screen the diversion to protect fishery resources (fish screen or infiltration gallery). The pump will be designed to draw up to 30 cfs of water. The pumping unit would consist of the wet well caisson, a water pump, and electric motors. Pump and motor controls will be installed on a platform above the wet well. The platform will be placed above the 100-year flood levels. Power sources for the lift station and fish screen would be installed by Sacramento Municipal Utility District (SMUD) as part of this project.

OHWD would also install about 600 feet of pipeline to convey the water from the pumping unit to the spreading basin. Existing soils in the project area will be tested to determine its suitability as a backfill around the pipeline and levee protection features. Pressure relief and vacuum valves would be installed to provide pipeline protection. A riprap outflow structure will be constructed in the spreading basin to dissipate energy from water flow and provide protection against soil erosion. The spreading basin would be constructed to allow infiltration of water; removal of top soil will improve the infiltration rates and will provide earth material needed for constructing berms around the basin. A monitoring well, with up to four nested piezometers, would also be completed as part of the Phase 1 project within the spreading basin to assess groundwater impacts. Field experience during drilling will determine the final monitoring well design.

In Phase 2 construction, the new well site will be installed on westerly edge of RMCS D's service area on agriculture lands. The new well will be constructed of 12- to 16-inch diameter steel casing with stainless steel screen, between 500 and 600 feet in depth. The well and associated well head facilities will be designed to pump between 500 and 600 gpm. The pumping unit would consist of an above-grade water pump and electric motors set on a platform. The platform will be placed above the 100-year flood levels. Power sources would be installed by Sacramento Municipal Utility District (SMUD) as part of this project.

Also as part of the Phase 2 construction, RMCSD will install approximately 5,000 feet of 10-inch pipeline to convey the water from the well site to the existing distribution system for a direct connection. Existing soils in the project area will be tested to determine its suitability as a backfill around the pipeline, and backfill will be augmented by select imported material for the pipe bedding and pipe zone, as appropriate for the type of pipe installed. Backflow valves would be installed to provide well protection.

Performance Testing and Demobilization

Following project construction, performance testing will be performed on new facilities. This includes a percolation test on the new spreading basin, a well drawdown and pump test on the new extraction well, leakage tests performed on all pipes, followed by full system flow tests conducted in the pipelines after the system is operational. Testing and demonstration of diversion pumps and associated electrical components, valves, gauges and other mechanical equipment will also be performed. Groundwater levels will be monitored starting upon project completion.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

Little environmental mitigation or enhancement actions beyond normal construction best management practices (BMPs) are expected to be required for the project. In the event that mitigation or enhancement measures are required for the water rights permitting, RMCSD will comply with any and all such requirements. Additionally, should mitigation or enhancement measures be required for the Section 401, 404, and/or 1601 permits, OHWD will comply with any and all such requirements. Examples of such mitigation measures may include the need for pre-construction surveys prior to construction and onsite biological monitoring during construction.

A Stormwater Pollution Prevention Plan (SWPPP) will also be prepared and implemented as part of project construction; thus only standard stormwater best management practices will likely be implemented through the construction period. Implementation of the approved Project Performance Monitoring Plan will also be conducted as part of this task. This includes implementation of the required performance monitoring, data assessment and reporting. The project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration includes Construction Management services and other tasks associated with the bidding and contracting of the construction work. Some of the specific work items to be completed as part of this task include:

- Review contractor's schedule and make recommendations

- Manage and coordinate all project inquiries and contractor correspondence
- Maintain detailed project records
- Receive, log, and distribute all submittals for review
- Inspect completed construction
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Included in this budget category are permit fees and Task 12, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results.

Task 12: Project Performance Plan

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the OHWD/Rancho Murieta Groundwater Recharge Project will be prepared under this task.

Task 12 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% has been included and is based on prior experience and the early stage of the project. The contingency is detailed in Attachment 4.

Project 15: Sleepy Hollow Detention Basin Retrofit Project

Benefits of this project include:

- Reducing the 10-year and 100-year storm elevations in the detention basin
- Serving as a pilot/demonstration project for conversion of conventional detention basins into multi-use/benefit detention basins for holistic watershed protection
- Increasing existing groundwater elevations
- Improving the habitat of local and migrating wildlife species
- Providing valuable recreational space for public with a jogging/walking trail

Detailed Description

The Sleepy Hollow Detention basin is a 6.3-acre detention (flood control) basin that provides flood control and protection to the adjacent Sleepy Hollow Unit 2 subdivision in the City of Elk Grove. At the time the detention basin was designed, the primary function of the basin was to manage stormwater runoff and relieve flood risks; a concrete overflow spillway allows 100-year storm flows to enter the basin from the adjacent Laguna Creek tributary. The basin also serves a secondary function of water quality treatment by including a low volume integrated water quality basin for gravitation settling and removal of pollutant from stormwater runoff detailed during small storm events. This basin is one of numerous similar basins in the Sacramento urban area that were installed to serve new developments since the early 1990s.

Although the Sleepy Hollow Detention Basin fulfills its original design intention, there is a tremendous potential and community will to achieve more at this location. The proposed project would transform the existing dual-purpose basin into a multi-purpose facility that not only provides flood storage, but also increases water quality benefits, enhances aquatic and upland habitat, recharges the underlying groundwater basin, and provides recreational/aesthetic opportunities to the area. Native vegetation is sparse in and around the basin and consequently limits the water quality benefits and provides poor habitat for native wildlife. The proposed basin retrofit would add native vegetation to increase and improve aquatic and upland habitat and to enhance water quality treatment capabilities. Additionally, the project would add trails to provide recreational/aesthetic opportunities to the local community during non-flood and low-flow periods. Finally, with the natural resource and access improvements, the basin can become an ‘outdoor classroom’ for the five schools located within a two-mile radius of the project site and for the community.

Implementation of this project is consistent with watershed protection goals and recommendations in the 2009 *Laguna Creek Watershed Management Action Plan* (CKB Environmental Consulting, Inc., May 2009) and is fully supported by the Laguna Creek Watershed Council (LCWC) and the surrounding rural residential community. The project was also assigned a high priority ranking for the *City of Elk Grove’s Flood Control and Storm Drainage Master Plan (DMP)* by the City’s DMP Expert Advisory Committee

(the DMP is scheduled for adoption in 2011). The City of Elk Grove will be the lead agency on the detention basin retrofit project, working collaboratively with volunteers from the LCWC and the Sheldon Community Association.

The goal of the Sleepy Hollow Detention Basin Retrofit Project is to complete the design, plans, specifications, and construction of a multi-functional basin. Conceptual scenarios for the basin retrofit were identified through the City's DMP process; therefore, the general approach to implementation of the project is as follows:

- Step 1: Analyze conceptual scenarios for enhancement of the basin, such as the development of perennial channels to treat summer irrigation flows, seasonal wetland areas to treat large storm flows and winter runoff, and addition of habitat heterogeneity through creation of riparian clusters and habitat mounds. Investigate soil conditions for piloting the use of dry wells for promoting stormwater infiltration;
- Step 2: Select a preferred option;
- Step 3: Develop plans and specifications for basin retrofit through the 100% design stage, including the siting and design of dry wells, plantings, and irrigation plans;
- Step 4: Finalize plans and specifications for advertising and bidding;
- Step 5: Select a contractor through a competitive bid process and construct project; and
- Step 6: Conduct post-construction monitoring.

Groundwater recharge and recovery is a water-storage technology gaining acceptance by water resource planners and scientists nationwide and worldwide. Essentially, this project would promote stormwater infiltration and conveyance into the underlying aquifer through drywells. These wells would be designed such that only high flow events with high quality stormwater will be recharged into the aquifer. Recovery of the infiltrated water could provide great benefits to environmental, agricultural, and urban users. The biggest benefits will be provided to the citizens of Elk Grove and agricultural users located in adjacent unincorporated areas of Sacramento County.



Figure 29: Location of Sleepy Hollow Detention Basin Retrofit Project

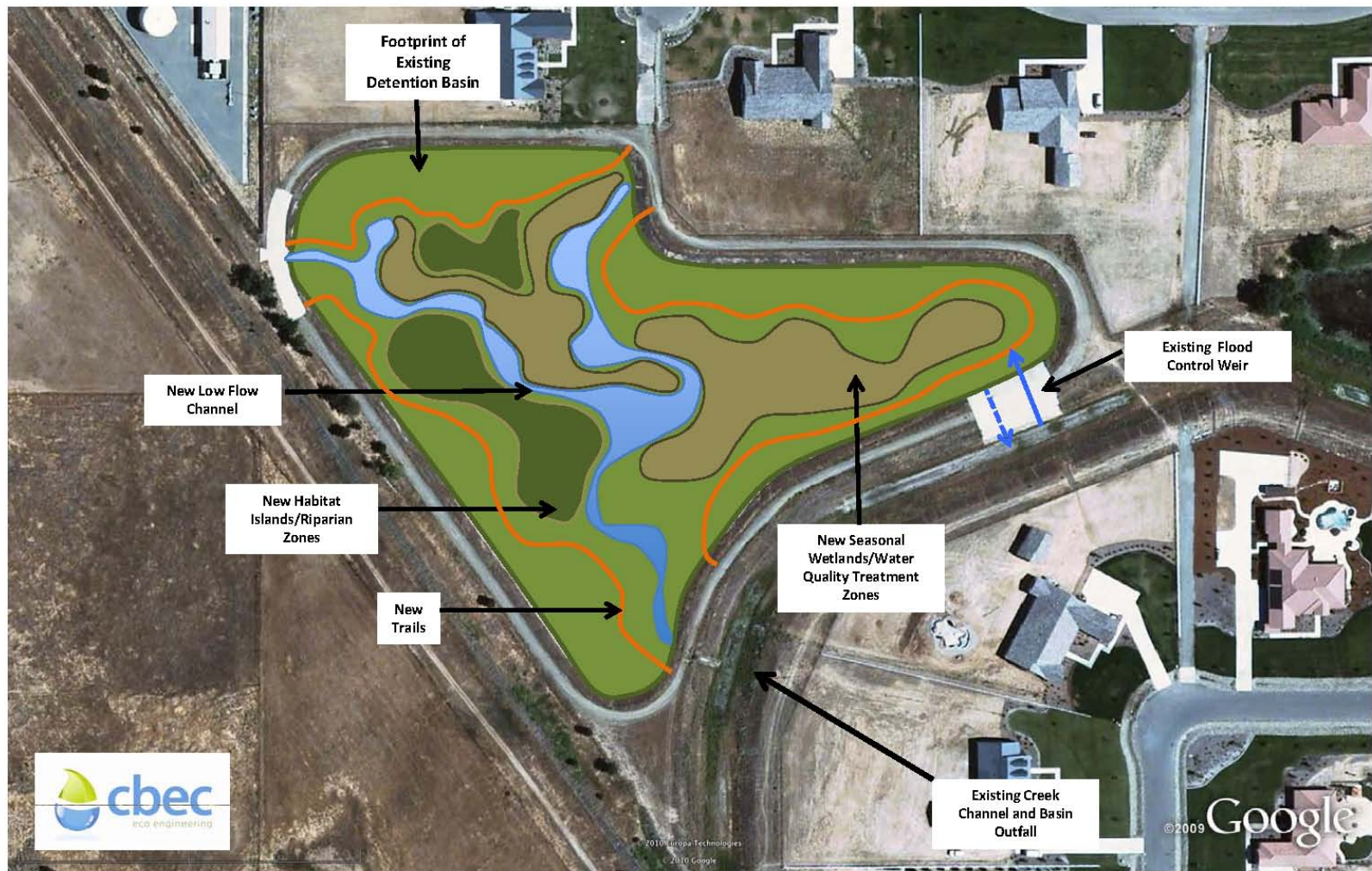


Figure 30: Sleepy Hollow Detention Basin Retrofit Schematic

Budget Category (a): Direct Project Administration Costs

Direct project administration costs include general project administration tasks (claim preparation, communications with RWA, and council communications), Labor Compliance Program (LCP) implementation, and reporting (quarterly reports and final report). Included under this budget category are three tasks: administration, a labor compliance program, and reporting.

Task 1: Administration

The City of Elk Grove will be the lead agency on this project, but the project will be implemented cooperatively with Laguna Creek Watershed Council (LCWC), the Sheldon Community Association, and with local, well organized grass-roots community groups. Under Task 1, the City of Elk Grove will communicate with its partners, with RWA, the grant administrator, and with its contractors. The City will also advertise workshops, and coordinate as necessary, for implementation of the public outreach process.

Task 2: Labor Compliance Program

Prior to project construction, the City of Elk Grove will hire a third party to develop and implement a Labor Compliance Program (LCP). The labor compliance services will include, at a minimum, monitoring and preparation of summary and status reports, receiving, reviewing, and processing certified payroll reports, conducting interviews, as well as collecting, reviewing, and processing other data. Annual reports to the Department of Industrial Relations (DIR) will also be prepared and submitted.

Task 2 Deliverables:

- Certified Labor Compliance Program
- Annual DIR Reports

Task 3: Reporting

Following execution of the grant agreement, quarterly reports will be prepared assessing the progress and accomplishments of the Sleepy Hollow Detention Basin Retrofit Project. A project completion report will also be prepared at the end of the project, anticipated to be in December 2013. The City of Elk Grove will keep all records and documents pertaining to the project for three years after project completion.

Task 3 Deliverables:

- Quarterly Reports as specified in the Grant Agreement
- Final reports as specified in the Grant Agreement

Budget Category (b): Land Purchase/Easement

Morrison Homes Inc. completed the Sleepy Hollow Unit 2 subdivision in 2005. The conditions of approval required the developer to dedicate the lots containing the detention basin to the City of Elk Grove. Final dedication of those lots is currently in the process of being recorded and should be completed by February 2011.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Planning documents have and will be prepared to demonstrate the viability of the project and are listed below. At this time, the 10% design of the project has been completed and the 30% design stage will be completed prior to the June 2011 grant award date. Project construction will begin following design completion, with the project operational by November 2013.

Task 4: Assessment and Evaluation

The following relevant studies and plans have been completed or are currently in progress:

- *The Laguna Creek Watershed Management Plan* (CKB Environmental Consulting, Inc., May 2009) was developed as a means of managing the 65-square mile Laguna Creek Watershed and the Sleepy Hollow subwatershed to protect natural resources, including nearly 400 acres of vernal pools and associated habitat for threatened and endangered wildlife species, as well as providing flood protection for the surrounding area. The Sleepy Hollow Detention Basin Retrofit Project fulfills several objectives of the plan.
- Preliminary (Conceptual) Design of the Sleepy Hollow Detention Basin was completed as part of the City's DMP Process in the summer and fall of 2010
- *The City of Elk Grove's Flood Control and Storm Drainage Master Plan* (DMP) is currently in development and is expected to be completed by April 2011. This study is continuing to evaluate flood control and storm drainage deficiencies in the area. The continued design of the basin retrofit project will occur as part of the development of the Master Plan. No funding is requested to complete this study.

Task 4 Deliverables:

- Draft and Final *Flood Control and Storm Drainage Master Plan*

Task 5: Final Design

The 10% Design for this project was completed in August of 2010. Overall, four design submittals are expected to be completed for this project, corresponding to the 10%, 30%, 90% and 100% (Final) Design documents. The 30% Design is expected to be completed in April 2011. The 60% Design is expected to be completed in June 2011, the 90% Design in August of 2011 and the Final (100%) design completed in October 2011. The 90% design will include all plans and specifications for the well heads and facilities, and detailed itemized costs. The 100% Design will be used to advertise the project for bid for construction and will consist of the complete and signed specifications

Several key points will be considered during the on-going project design. The proposed retrofit design must not compromise the primary objective of the detention basin: 100-year storm event flood control protection. Additionally, existing outfall, intakes and weirs must be kept clear of any vegetation and sediment to allow the basin to function properly and additional burrow material will not be allowed to be brought in to complete the grading; all grading must be achieved with the existing footprint to have a net cut/fill of zero. Construction material will only include temporary irrigation pipes and equipment to be used for a minimum of five years to help establish the plantings. Conveyance of stormwater will be

achieved by created drainage swales and no piping will be required. All of these standards and methodologies will be reflected during design and construction of the project.

Task 5 Deliverables:

- 30% Design
- 60% Design
- 90% Design
- Final (100%) Design Plans and Specifications

Task 6: Environmental Documentation

An environmental analysis for CEQA compliance has not yet been completed; however, the City does not expect the Project to have any significant adverse effects on the environment. In fact, this Project will greatly benefit the surrounding environment by improving water quality, providing habitat for birds and aquatic animals, providing a valuable recreational space for public use with trail systems during non-flood periods, and providing groundwater recharge opportunities through the implementation of Darcy Columns (dry wells) throughout the basin. In order to be compliant with CEQA, a Mitigated Negative Declaration (MND) will be completed during the 90% design phase of the project.

Task 6 Deliverables:

- Approved and adopted Mitigated Negative Declaration

Task 7: Permitting

Permitting requirements will be identified and considered during project design. It is anticipated that a California Department of Fish and Game Section 1602 Streambed Alteration Agreement will be required for this project; this permit will be acquired by January 2012. Compliance with the State's General Stormwater NPDES Permit for construction will also be required. To that end, a Stormwater Pollution Prevention Plan (SWPPP) will be developed by the contractor and implemented as part of Budget Category (e) Environmental Compliance/Mitigation/Enhancement. The Project may also require a U.S. Army Corps of Engineers Section 404 Permit for construction in U.S. Waters; if a Section 404 Permit is sought, then a Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification will also be required. The dry wells will be registered with the United States Environmental Protection Agency Underground Injection Control Program.

Task 7 Deliverables:

- Department of Fish and Game Section 1602 Permit
- NOI & NOT for compliance with State's General Stormwater NPDES Permit for Construction
- U.S. Army Corps of Engineers Section 404 Permit (if required)
- Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification (if required)
- Environmental Protection Agency Underground Injection Control Permit

Budget Category (d): Construction/Implementation

Task 8: Construction Contracting

Work items under Task 8 include preparation of a bid package, pre-bid contractor's meeting, bid advertisement, bid evaluation, and award of contract. The Final Design Package completed during Task 5 will be used for the bid advertisement. Construction submittals are anticipated to include pre-bid contractor's meeting (including agenda and meeting minutes), bid advertisement, Notice of Award, and Notice to Proceed.

Task 8 Deliverables:

- Bid package
- Bid advertisement
- Pre-bid meeting agenda and minutes
- Notice of Award
- Notice to Proceed

Task 9: Construction

Construction is anticipated to begin November 2012 and end in November 2013. Task 9 is divided into three categories: mobilization and site preparation, project construction, and performance testing and demobilization, as described in the following sections.

Mobilization and Site Preparation

Upon receipt of the NTP, the contractor will mobilize his equipment and crew according to the pre-designated staging plan. Mobilization and site preparation includes clearing a path to the work area, creating a temporary staging area, and mobilizing large construction equipment to the site. Additionally, the contractor will install temporary construction fencing, stormwater management controls, and clear and grub the site.

Project Construction

For project construction, the contractor will retrofit the new multi-purpose basin. This will include grading for wetland creation and habitat enhancement, constructing five Darcy Columns (dry wells), constructing and installing irrigation piping, and constructing recreational trails. In addition, trees and shrubs will be planted, and interpretive signs will be placed.

Performance Testing and Demobilization

Following project construction, the contractor will perform site clean-up and fencing. This work phase also includes final inspection and project certification. Lastly, the contractor will demobilize all equipment to complete construction.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

The Sleepy Hollow Detention Basin Retrofit Project is an environmental enhancement project; as such, it is anticipated that there will be no environmental mitigations required beyond standard construction mitigation measures. A biologist will be onsite during construction to provide threatened and endangered species awareness to construction personnel, oversee construction operations during heavy equipment grading activity and conduct routine threatened and endangered species surveys of the construction area. All measures described in the SWPPP and any permits will be followed.

Also included in this task is implementation of the approved Project Performance Monitoring Plan. This includes implementation of the required performance monitoring, data assessment and reporting.

It should be noted that, while the schedule for this project shows that project performance monitoring and reporting will cease at the completion of project construction, it is understood the project performance monitoring will continue for 10 years following project completion, with annual project performance reporting.

Task 10 Deliverables:

- Notice of Termination for General Stormwater NPDES permit
- Mitigation and monitoring reports as required by permits & plans

Budget Category (f): Construction Administration

Task 11: Construction Administration

Construction Administration and Construction Management work items will be conducted under this task. City of Elk Grove staff will complete work associated with bidding/contracting (e.g. invoice approval), construction management services during construction and inspections during construction. Some of these specific work items include:

- Review contractor's schedule and make recommendations
- Manage and coordinate all contractor correspondence
- Project status meetings
- Receive, log and distribute all submittals for review
- Maintain detailed project records
- Perform field construction inspections
- Recommend final payment and submit all project files for archiving

Budget Category (g): Other Costs

Other costs include baseline monitoring, community engagement, permit and other fees, and project performance monitoring plan preparation and approval.

As previously noted, several permits will be required for the Sleepy Hollow Detention Basin Retrofit Project; these include an U.S. Army Corps of Engineers Section 404 Permit, a Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification and compliance with the State General Stormwater NPDES Permit. In addition, the City will need to pay Sacramento County Water fees in order to be able to temporarily tap into a nearby existing Sacramento County water line for irrigation to help establish the proposed vegetation following construction.

Task 12: Baseline Monitoring

Baseline monitoring will consist of a water quality assessment of the storm runoff coming into the basin and discharging from the basin. One of the objectives of the proposed project is to increase pollutant removal of the storm runoff by using integrated bioretention features in the proposed retrofit. Data gathered from the baseline study will help the City identify a minimum water quality goal and help design the appropriate facilities before any water enters a groundwater recharging dry-well. The Baseline Monitoring Plan Report will evaluate existing incoming and discharge water quality conditions to measure against post-construction conditions, and it will also summarize the hydrology of basin and groundwater percolation capacity.

Task 12 Deliverables:

- Baseline Monitoring Plan Report

Task 13: Community Engagement

The City desires to engage the adjacent community through at least one workshop to let them know about the Project and the City's intentions. In addition, the workshops provide a forum to get feedback from the public on the proposed project features. The City's experience has been that outreach to the public early in the process pays tremendous dividends when it comes to increased community support. Under Task 13, the City will advertise the workshops, prepare presentations, host the workshops, gather input, address issues and communicate with the community. The workshops will occur between 30% and 60% design.

Task 13 Deliverables:

- Workshop materials (agenda, minutes, presentations)

Task 14: Project Performance Plan

Included in this budget category is Task 14, Project Performance Monitoring Plan. This plan will be prepared to:

- Provide a framework for assessment and evaluation of project performance.
- Identify measures that can be used to monitor progress toward achieving project goals.
- Provide a tool to monitor and measure project process and guide final project performance reporting that will fulfill grant agreement requirements.
- Provide information to help improve current and future projects.
- Maximize the value of public expenditures to achieve desired environmental results

As part of the overall grant application, a program-wide Performance Monitoring Plan will be prepared for all projects to be implemented under the grant award. This document will be a compilation of project-specific performance monitoring plans and will, for each project, identify the problem to be addressed by the project, summarize the project tasks, specifying the project goals and desired outcomes, and include a project performance measures table presenting output and outcome indicators, measurements tool and methods to be implemented and performance targets. The plan section for the City's Sleepy Hollow Detention Basin Retrofit Project will be prepared under this task.

Task 14 Deliverables:

- Project Performance Monitoring Plan

Budget Category (h): Construction/ Implementation Contingency

A construction/implementation contingency of 20% has been included; this contingency is detailed in Attachment 4. This contingency value was selected based on the development of the project and previous experience with similar projects.

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Attachment 3 – Work Plan

The following table summarizes the supporting documentation provided for each project in this Proposal. This supporting documentation is provided as separately bound documents.

Project No.	Project Name	Supporting Documentation Included	Notes
1	City of Roseville ASR Program – Phase 2	Woodcreek North Pump Station Conformed Plans & Specs	The proposed project will be similar to the Woodcreek North Pump Station. Plans and specifications for the proposed project will therefore be similar to the plans and specs of the Woodcreek North Pump Station project.
2	Secret Ravine Fish Passage Improvement Project	Secret Ravine Fish Passage Improvement Plan 90% Submittal	The 90% Design package for the proposed project have been included.
3	E.A. Fairbairn Groundwater Well Project	Improvement Plans for Well No. 164	The proposed project will be similar to previous well projects by the City of Sacramento. The plans and specs for the proposed project will therefore be similar to the plans and specs for the City's Wells No. 153, 164 and 165.
		Well 164 Profile and Casing Specifications	
		Well 165 and Well 153 Technical Specifications	
4	Shasta Park Reservoir and Well Project	Improvement Plans and Contract Specifications for Elkhorn Reservoir	The proposed project includes a reservoir similar to the Elkhorn Reservoir. Plans and Specs for the Elkhorn Reservoir have therefore been included.
		Improvement Plans for Well No. 164	The proposed project will be similar to previous well projects by the City of Sacramento. The plans and specs for the proposed project will therefore be similar to the plans and specs for the City's Wells No. 153, 164 and 165.
		Well 164 Profile and Casing Specifications	
		Well 165 and Well 153 Technical Specifications	
5	Antelope Creek Water Efficiency and Flood Control Improvement Project	Caltrans "Construction Site Best Management Practices Manual: standards SC4, SS-10 and SS-11 (2003)"	The proposed project will utilize Caltrans's BMP Manual standards for Check Dams and Velocity Dissipation Devices
		PCWA "Natural Resource Management Training Manual" BMP 1b	The proposed project will follow PCWA's BMP standards for bank stability and sediment traps
		PCWA Canal Gunite Specifications	The proposed project will follow PCWA's Canal

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Project No.	Project Name	Supporting Documentation Included	Notes
			Gunite Specifications
		Miner's Ravine Contract, Specs & Bid Schedule	The proposed project is similar to Miner's Ravine Off-Channel Detention Basin Project. The specifications, bid schedule, and mitigation monitoring program for the Miner's Ravine project have therefore been included.
		Miner's Ravine Mitigation Monitoring Program	
6	Regional Water Meter Retrofit Acceleration Project	Sacramento County Standard Meter Detail Drawing	Meter retrofits will follow the standard meter detail drawings of the appropriate agency.
		City of Sacramento Standard Meter Detail Drawing	
		Sacramento Suburban Water District Standard Meter Detail Drawing	
7	Regional Indoor and Outdoor Water Efficiency Project	California Urban Water Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California	The proposed project will follow the requirements and guidelines presented in the MOU.
8	Sacramento Regional County Sanitation District / Sacramento Power Authority Recycled Water Project	SRCSO/SPA Recycled Water Project Feasibility Study	The Feasibility Study for the project also includes the conceptual design drawings for the project.
9	North Antelope Booster Pump Station Project	North Antelope Booster Pump Station Piping Plan	The piping plan and site evaluation function as the conceptual design for the proposed project.
		Preliminary Pump Station Site Evaluation Technical Memorandum	
		Sacramento Suburban Water District Standard Details	The project will follow these included SSWD Standards.
		Sacramento Suburban Water District Improvement Standards and Technical Specifications	

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Project No.	Project Name	Supporting Documentation Included	Notes
10	Coyle Avenue and Roseview Park Pump Stations and Treatment Systems Project	Project Manual for Construction, Development and Testing of the Roseview Park (N37) and the Coyle (N38) Wells	The design of the well portion of the proposed project has already been completed. This project manual forms the basis for the bid package that was released in December 2010.
		Verner Avenue Well and Treatment Facilities Plans and Specifications	The pump station and treatment systems portion of the project will be very similar to the previously constructed Verner Avenue Well and Treatment Facilities Project. Plans and specs for the Verner Avenue Well project have been included.
11	Willow Hill Pipeline Rehabilitation Project	Underground Solutions Fusible PVC Folsom RCP Slipline Budgetary Proposal and Technical Submittal	The rehabilitation method is likely to be sliplining using fusible PVC. A proposal and technical specifications for a previous fusible pvc sliplining project has therefore been included.
		Fusible PVC Pipe Material Specification	
		Proposal for a Two Year Water Loss Control Program for the City of Folsom Utilities Department	Two Year Water Loss Control Program Outline (WSO Inc., March 2010) identified and prioritized distribution system leaks and repairs
12	Lower American River Mile 0.5 Aquatic Riparian Habitat Enhancement Project	Sacramento River Bank Protection Project American River RM 0.5R Mitigation Site Final Plans and Specifications	The final plans and specifications for the proposed project are included.
13	Lower Cosumnes River Floodplain Restoration Project	Lower Cosumnes River Floodplain Restoration Project Preliminary 10% Design	The 10% Design submittal for the proposed project has been included.
14	OHWD / Rancho Murieta Groundwater Recharge Project	Planning and Implementation of Groundwater Storage and Recovery Systems International (Journal of Water Resources & Arid Environments)	This paper analyzed the use of infiltration basins as a groundwater recharge element and identified three possible recharge site locations, including the area of the proposed project.
		Anderson Airport Well Test Hole Drilling Results and Proposed Well Design	This document evaluated ground conditions for well drilling in the area of the proposed project.

American River Basin
Attachment 3 – Work Plan

Project No.	Project Name	Supporting Documentation Included	Notes
15	Sleepy Hollow Detention Basin Retrofit Project	City of Elk Grove Standard Construction Specifications	The proposed project will follow the included City of Elk Grove Standards.
		Sleepy Hollow Unit No. 2 Grading and Erosion Control Plan	This drawing is the record topo of the Sleepy Hollow Detention Basin.
		Improvement Plans for Shops at Calvine and Bradshaw	The proposed project will include improvements similar to the Erosion Control Plan in these Improvement Plan drawings.
		Landscape Architectural Construction Drawings for Paseo Greenbelt & Wetlands Riparian Habitat Mitigation Area; Laguna Ridge – Drainage Parkway	The proposed project will be similar to the recently constructed Laguna Ridge Drainage Parkway project.